

FINAL REPORT
DECEMBER 1997

REPORT NO. 96-46

19980914 020

2.75-INCH, HYDRA 70, PA151,
ROCKET PALLET FIRST ARTICLE
TESTING (FAT)

DTIC Q745

Prepared for:
U.S. Army Armament Research, Development
and Engineering Center
ATTN: AMSTA-AR-ESK
Rock Island, IL 61299-7300

Distribution Unlimited



VALIDATION ENGINEERING DIVISION
SAVANNA, ILLINOIS 61074-9639

AVAILABILITY NOTICE

A copy of this report will be furnished each attendee on automatic distribution. Additional copies or authority for reprinting may be obtained by written request from Director, U.S. Army Defense Ammunition Center, ATTN: SIOAC-DEV, 3700 Army Depot Road, Savanna, IL 61074-9639.

DISTRIBUTION INSTRUCTIONS

Destroy this report when no longer needed. Do not return.

Citation of trade names in this report does not constitute an official endorsement.

The information contained herein will not be used for advertising purposes.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION / AVAILABILITY OF REPORT UNLIMITED	
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE				
4. PERFORMING ORGANIZATION REPORT NUMBER(S) 96-46			5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION U.S. Army Defense Ammunition Center		6b. OFFICE SYMBOL (if applicable) SIOAC-DEV	7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State, and ZIP Code) ATTN: SIOAC-DEV Savanna, IL 61074-9639			7b. ADDRESS (City, State, and ZIP Code)	
8a. NAME OF FUNDING / SPONSORING ORGANIZATION U.S. Army Armament Research, Development and Engineering Center		8b. OFFICE SYMBOL (if applicable) AMSTA-AR-ESK	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State, and ZIP Code) ATTN: AMSTA-AR-ESK Rock Island, IL 61299-7300			10. SOURCE OF FUNDING NUMBERS	
			PROGRAM ELEMENT NO.	PROJECT NO.
			TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) 2.75-Inch, Hydra 70, PA151, Rocket Pallet First Article Testing (FAT)				
12. PERSONAL AUTHOR(S) Quinn D. Hartman				
13a. TYPE OF REPORT Final	13b. TIME COVERED FROM _____ TO _____		14. DATE OF REPORT (Year, Month, Day) 1997 December	15. PAGE COUNT
16. SUPPLEMENTARY NOTATION				
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP		
19. ABSTRACT (Continue on reverse if necessary and identify by block number)				
<p>The U.S. Army Defense Ammunition Center (DAC), Validation Engineering Division (SIOAC-DEV), was tasked by U.S. Army Armament Research, Development and Engineering Center (ARDEC) to conduct MIL-STD-1660, Design Criteria for Ammunition Unit Loads, First Article Testing (FAT) on the 2.75-inch, Hydra 70, PA151, rocket pallet produced by Delfasco of Tennessee, Greeneville, TN and Lockheed Martin, Burlington, VT. The MIL-STD-1660 testing revealed several design deficiencies that had to be corrected before the pallet would pass the MIL-STD-1660 test criteria. Modifications that were made to the pallet design included a larger pallet adapter aligning pin and strengthening plates under the pallet deck above the four corner pallet posts. After these modifications were made, the pallets were able to meet MIL-STD-1660 test criteria. (Continued)</p>				
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL JEROME H. KROHN			22b. TELEPHONE (Include Area Code) 815-273-8929	22c. OFFICE SYMBOL SIOAC-DEV

19. ABSTRACT (continued).

Prior to discovering these problems, Delfasco and Lockheed Martin had fabricated and welded several hundred pallets and adapter sets. These pallets and adapters did not meet MIL-STD-1660 test criteria so they could not be accepted without modifications. Several attempts were made before an acceptable modification was found. The modification consisted of side reinforcers that were welded to the inside and outside of the four corner posts of the pallet. The modification did not eliminate all the cracking in the deck that occurred during the testing, but did prevent the pallet post from pushing through the deck in a potentially damaging fashion as occurred during the testing of the original pallet design. The modified pallets were approved for U.S. Army (USA)-wide use, but only as a means for utilizing those pallets that were already fabricated. All future pallet production was to use the strengthening plates under the deck above the four corner pallet posts.

U.S. ARMY DEFENSE AMMUNITION CENTER
VALIDATION ENGINEERING DIVISION
SAVANNA, IL 61074-9639

REPORT NO. 96-46

2.75-INCH, HYDRA 70, PA151, ROCKET PALLET FIRST ARTICLE TESTING (FAT)

TABLE OF CONTENTS

PART	PAGE NO.
1. INTRODUCTION.....	1-1
A. BACKGROUND.....	1-1
B. AUTHORITY	1-1
C. OBJECTIVE	1-1
D. CONCLUSION.....	1-1
2. ATTENDEES.....	2-1
3. TEST PROCEDURES	3-1
4. TEST EQUIPMENT	4-1
5. TEST RESULTS	5-1
6. PHOTOGRAPHS.....	6-1
7. DRAWINGS	7-1

PART 1

INTRODUCTION

A. BACKGROUND. The U.S. Army Defense Ammunition Center (DAC), Validation Engineering Division (SIOAC-DEV), was tasked by U.S. Army Armament Research, Development and Engineering Center (ARDEC) to conduct MIL-STD-1660, Design Criteria for Ammunition Unit Loads, First Article Testing (FAT) on the 2.75-inch, Hydra 70, PA151, rocket pallet produced by Delfasco of Tennessee, Greeneville, TN and Lockheed Martin, Burlington, VT.

B. AUTHORITY. This test was conducted IAW mission responsibilities delegated by the U.S. Army Armament, Munitions and Chemical Command (AMCCOM), Rock Island, IL. Reference is made to the following:

1. Change 4, 4 October 1974, to AR740-1, 23 April 1973, Storage and Supply Activity Operation.

2. AMCCOM-R, 10-17, Mission and Major Functions of USADACS, 13 January 1986.

C. OBJECTIVE. The objective of the tests was to determine if the pallets produced by Delfasco and Lockheed Martin met MIL-STD-1660 test requirements prior to the acceptance of the pallets by the U.S. Army (USA).

D. CONCLUSION. The original pallet design as produced by Delfasco failed to meet the test criteria of MIL-STD-1660, Design Criteria for Ammunition Unit Loads. The deck of the pallet adapter cracked at the corner posts and the bottom adapter aligning pins sheared off as a result of the repetitive shock test. Modifications were made to the original pallet design to correct these deficiencies. The modifications consisted of an additional thickness of material welded to the

bottom of the pallet deck above the four corner posts and larger diameter aligning pins on the bottom pallet adapter. After these modifications were made, the pallets produced by Delfasco and Lockheed Martin were able to meet MIL-STD-1660 test criteria.

Prior to discovering the design deficiencies, Delfasco and Lockheed Martin had fabricated and welded several hundred pallets and adapters in an effort to get ahead of the production schedule. These pallets and adapters were of the original design and were not capable of meeting MIL-STD-1660 test criteria. In an effort to salvage this production, additional tests were performed to determine if there was a cost-effective modification that could be made to the pallets that would allow them to meet MIL-STD-1660 test criteria. Several attempts were made before an acceptable modification was found. The modifications consisted of side reinforcers that were welded to the inside and outside of the four corner posts of the pallet and a larger diameter bottom adapter aligning pin. The modification did not eliminate all the cracking in the deck that occurred during the testing, but did prevent the pallet post from pushing through the deck in a potentially damaging fashion as occurred during testing of the original pallet design. The pallets with this modification were approved for U.S. Army (USA)-wide use, but only as a means for utilizing those pallets that were already fabricated. All future pallet production was to use the strengthening plates under the deck above the four corner pallet posts.

PART 2

MAY - SEPTEMBER 1996

ATTENDEES

Quinn D. Hartman
General Engineer
DSN 585-8992
815-273-8992

Director
U.S. Army Defense Ammunition Center
ATTN: SIOAC-DEV
3700 Army Depot Road
Savanna, IL 61074-9639

Jerome H. Krohn
Supervisory General Engineer
DSN 585-8908
815-273-8908

Director
U.S. Army Defense Ammunition Center
ATTN: SIOAC-DEV
3700 Army Depot Road
Savanna, IL 61074-9639

Thomas J. Michels
Supervisory Industrial Engineer
DSN 585-8080
815-273-8080

Director
U.S. Army Defense Ammunition Center
ATTN: SIOAC-DES
3700 Army Depot Road
Savanna, IL 61074-9639

Mark Rehmstedt
Packaging Specialist
DSN 793-8206
309-782-8206

U.S. Army Armament Research, Development
and Engineering Center
ATTN: AMSTA-AR-ESK
Rock Island, IL 61299-7300

Nora Hipschen
DSN 793-8204
309-782-8204

U.S. Army Armament Research, Development
and Engineering Center
ATTN: AMSTA-AR-ESK
Rock Island, IL 61299-7300

Captain Mike Ryan

Industrial Operations Command
ATTN: AMSIO-SMI-H
Rock Island, IL 61299-6000

Roy Buckrop

Industrial Operations Command
ATTN: AMSIO-IOE-P
Rock Island, IL 61299-6000

ATTENDEES (CONT)

Larry Handler
802-657-7479

Lockheed Martin
Ordnance Systems
Lakeside Avenue
Burlington, VT 05401-4985

PART 3

TEST PROCEDURES

The test procedures outlined in this section were extracted from MIL-STD-1660, Design Criteria for Ammunition Unit Loads, 8 April 1977. This standard identifies nine steps that a unitized load must undergo if it is to be considered acceptable. The four tests that were conducted on the test pallets are summarized below.

A. STACKING TEST. The unit load was loaded to simulate a stack of identical unit loads stacked 16 feet high, for a period of one hour. This stacking load was simulated by subjecting the unit load to a compression weight equal to an equivalent 16-foot stacking height. The compression load was calculated in the following manner. The unit load weight was divided by the unit load height in inches and multiplied by 192. The resulting number was the equivalent compressive force of a 16-foot-high load.

B. REPETITIVE SHOCK TEST. The repetitive shock test was conducted IAW Method 5019, Federal Standard 101. The test procedure is as follows: The test specimen was placed on, but not fastened to, the platform. With the specimen in one position, the platform was vibrated at 1/2-inch amplitude (1-inch double amplitude) starting at a frequency of approximately 3 cycles per second. The frequency was steadily increased until the package left the platform. The resonant frequency was achieved when a 1/16-inch-thick feeler gage momentarily slid freely between every point on the specimen in contact with the platform at some instance during the cycle or a platform acceleration achieved 1 ± 0.1 Gs. Midway into the testing period, the specimen was rotated 90 degrees and the test continued for the duration. Unless failure occurred, the total time of vibration was two hours if the specimen was tested in one position and three hours for more than one position.

C. EDGEWISE ROTATIONAL DROP TEST. This test was conducted using the procedures of Method 5008, Federal Standard 101. The procedure for the edgewise rotational drop test is as follows: The specimen was placed on its skids with one end of the pallet supported on a beam 4-1/2 inches high. The height of the beam was increased if necessary to ensure that there was no support for the skids between the ends of the pallet when dropping took place, but was not high enough to cause the pallet to slide on the supports when the dropped end was raised for the drops. The unsupported end of the pallet was then raised and allowed to fall freely to the concrete, pavement, or similar underlying surface from a prescribed height. Unless otherwise specified, the height of drop for level A protection conforms to the following tabulation:

GROSS WEIGHT (WITHIN RANGE LIMITS) (Pounds)	DIMENSIONS OF ANY EDGE, HEIGHT OR WIDTH (WITHIN RANGE LIMITS) (Inches)	HEIGHT OF DROPS ON EDGES	
		Level A (Inches)	Level B (Inches)
150 - 250	60 - 66	36	27
250 - 400	66 - 72	32	24
400 - 600	72 - 80	28	21
600 - 1,000	80 - 95	24	18
1,000 - 1,500	95 - 114	20	16
1,500 - 2,000	114 - 144	17	14
2,000 - 3,000	Above 145 - No limit	15	12
Above - 3,000		12	9

D. INCLINE-IMPACT TEST. This test was conducted by using the procedure of Method 5023, Incline-Impact Test of Federal Standard 101. The procedure for the incline-impact test is as follows: The specimen was placed on the carriage with the surface or edge to be impacted

projecting at least 2 inches beyond the front end of the carriage. The carriage was brought to a predetermined position on the incline and released. If it was desired to concentrate the impact on any particular position on the container, a 4- by 4-inch timber was attached to the bumper in the desired position before the test. No part of the timber was struck by the carriage. The position of the container on the carriage and the sequence in which surfaces and edges were subjected to impacts was at the option of the testing activity and depends upon the objective of the tests. This test was to determine satisfactory requirements for a container or pack, and, unless otherwise specified, the specimen was subjected to one impact on each surface that has each dimension less than 9.5 feet. Unless otherwise specified, the velocity at time of impact was 7 feet per second.

PART 4

TEST EQUIPMENT

A. Compression Tester.

- | | |
|-----------------------|----------------------|
| 1. Manufacturer: | Ormond Manufacturing |
| 2. Platform: | 60- by 60-inches |
| 3. Compression Limit: | 50,000 pounds |
| 4. Tension Limit: | 50,000 pounds |

B. Transportation Simulator.

- | | |
|------------------|--------------------|
| 1. Manufacturer: | Gaynes Laboratory |
| 2. Capacity: | 6,000-pound pallet |
| 3. Displacement: | 1/2-inch amplitude |
| 4. Speed: | 50 to 400 rpm |
| 5. Platform: | 5- by 8-foot |

C. Inclined Plane.

- | | |
|------------------|--------------------|
| 1. Manufacturer: | Conbur Incline |
| 2. Type: | Impact Tester |
| 3. Grade: | 10 percent incline |
| 4. Length: | 12-foot |

PART 5

TEST RESULTS

The test pallets were inertly-loaded to the specified design weight using two 4- by 4-inch lengths of lumber, two 2- by 4-inch lengths of lumber, and a quantity of ammunition simulant to bring each individual container to the required weight. Special care was taken to ensure that each container had the proper amount of weight in order to achieve a realistic pallet center of gravity (CG). The following sequence of tests were conducted in an effort to:

1. Qualify the Delfasco fabricated and Lockheed Martin welded pallets and adapters that had been fabricated according to the original design specifications then modified in an effort to meet MIL-STD-1660 test criteria.

2. Qualify the Delfasco fabricated and Lockheed Martin welded pallets and adapters constructed with the modified design.

3. Qualify the Delfasco fabricated and welded pallets and adapters with the modified design.

Unless otherwise noted, all the pallets and adapters in the following test sequences are Delfasco fabricated and Lockheed Martin welded.

A. Pallet 1. Pallet No. 1 from the initial first article submissions.

Date:	20 May 1996
Weight:	2,030 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,960 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 60 minutes at 230 rpm. During a routine inspection, the containers and bottom adapter were noted to have shifted approximately 2 inches relative to the pallet base. Further inspection revealed that the adapter aligning pins on the bottom adapter had sheared off during the vibration. No additional testing was conducted on this pallet.

B. Pallet 2. Pallet No. 2 from the initial first article submissions. Bottom adapter and pallet modified to accept the larger adapter pin AC200000453-6.

Date:	22 May 1996
Weight:	2,030 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,960 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 235 rpm in the longitudinal orientation and 90 minutes at 175 rpm in the lateral orientation. Several small cracks were noted to have formed in the pallet posts next to the pallet skids at the completion of the longitudinal vibration test. No additional cracking was noted at the completion of the lateral vibration.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped from a height of 24-inches on the longitudinal drops and 14-inches on the lateral drops.

4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the toplift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. Two of the cracks that were noted during the vibration test were determined to be severe enough to allow the pallet post to penetrate into the pallet load. Because of the severity of the deck cracking, the test pallet was considered to have failed MIL-STD-1660 test criteria.

C. Pallet 3. Pallet No. 3 from the initial first article submissions. Bottom adapter and pallet modified to accept the larger adapter pin AC200000453-6.

Date:	23 May 1996
Weight:	2,030 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,960 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 225 rpm in the longitudinal orientation and 90 minutes at 175 rpm in the lateral orientation. Upon completion of the longitudinal vibration, the pallet was elevated and inspected from the bottom side. Cracks were noted to have formed around the pallet posts at the bell end of the pallet.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 24-inches on the bell end of the pallet and 14 inches on the first lateral drop. The remainder of the drops were conducted at 15 inches after the discovery of the change in drop height specifications was noted. As a result of the drop tests, the bell end of the pallet had the posts pushed through the pallet deck into the bottom adapter while the non-bell end of the pallet did not show the same type of damage.

4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the toplift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. No additional damage was noted to have occurred since the inspection after the edgewise rotational drop tests. Because of the severity of the deck cracking, the test pallet was considered to have failed MIL-STD-1660 test criteria.

D. Pallet 4. Pallet No. 1 modified from the initial first article submissions. Bottom adapter and pallet modified to accept the larger adapter pin AC200000453-6. Testing restarted at the point where the adapter pins failed during the longitudinal vibration testing previously conducted on 20 May 1996.

Date:	24 may 1996
Weight:	2,030 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Repetitive Shock Test. The test pallet was vibrated 30 minutes at 220 rpm in the longitudinal orientation to complete the longitudinal orientation started on 20 May 1996. Minor cracks were noted in the pallet posts next to the skid at the completion of the longitudinal orientation. The test pallet was then vibrated 90 minutes at 165 rpm. Upon completion of the lateral orientation, the test pallet was elevated so the bottom of the pallet deck could be inspected. The cracks noted at the completion of the longitudinal orientation had not increased significantly. Cracks were noted to have formed in the pallet base around the corner posts of the pallet.

2. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 15-inches on all four sides of the pallet. No additional cracking was noted to have occurred in the pallet based when inspected from the bottom side of the pallet.

3. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the top-lift was noted.

4. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted upon completion of the test.

5. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. Three of the four corner posts of the pallet were noted to have pushed up through the pallet deck into the bottom adapter. Since this damage represented a potential hazard to the containers on the pallet, the pallet was considered to have failed MIL-STD-1660 testing.

E. Pallet 5. Pallet No. 1 from the second submission of pallets and adapters. The bottom adapter and pallet were modified to accept the larger adapter pin AC200000453-6 and the side reinforcers on the four corner posts. The initial side reinforcers that were used extended up to

the bottom of the pallet base on the inside of the corner posts but stopped at the strengthening bend on the pallet deck on the outside of the corner pallet posts (see photographs on pages 6-14 and 6-15).

Date:	12 June 1996
Weight:	2,035 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,985 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 235 rpm in the longitudinal orientation. Upon completion of the longitudinal vibration, the pallet deck was noted to have cracked at the strengthening bend where the outer side reinforcers had been welded to the deck material. No additional testing was conducted on this pallet.

F. Pallet 6. Pallet No. 2 from the second submission of pallets and adapters. The bottom adapter and pallet were modified to accept the larger adapter pin AC200000453-6 and the side reinforcers on the four corner posts. The portion of the outside reinforcers that was welded to the strengthening bend on the pallet base was ground off to prevent the deck cracking that took place on the previous pallet.

Date:	12 June 1996
Weight:	2,035 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,985 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 225 rpm in the longitudinal orientation and 90 minutes at 135 rpm in the lateral orientation. Upon completion of the longitudinal vibration, the pallet was elevated and inspected from the bottom side. Small cracks were noted to have formed on the outer edges of the pallet base on the outer edges of two corner posts. No change was noted in the cracking after the lateral orientation.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 15-inches on all four sides. No change in the cracks was noted after the completion of the rotational drops.

4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the top-lift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. The cracks that occurred during the longitudinal vibration were noted to be more substantial when viewed from the top side of the pallet base. Because of the severity of the deck cracking, the test pallet was considered to have failed MIL-STD-1660 testing.

G. Pallet 7. Pallet No. 1 from the third submission of pallets and adapters. The bottom adapter and pallet were modified to accept the larger adapter pin AC200000453-6 and the side reinforcers on the four corner posts. The second set of side reinforcers that were used extended up to the bottom of the pallet base on both sides of the corner posts.

Date: 06-24-96
Weight: 2,035 pounds
Length: 70-3/4 inches
Width: 29-3/8 inches
Height: 43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,985 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 225 rpm in the longitudinal orientation and 90 minutes at 170 rpm in the lateral orientation. Upon completion of the longitudinal vibration, the pallet was elevated and inspected from the bottom side. Small cracks were noted to have formed in the pallet posts along the skid. No cracking in the pallet deck was evident when viewed from the bottom side of the pallet.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 15-inches on all four sides. No change in the cracks was noted after the completion of the rotational drops.

4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the top-lift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. Small cracks were noted to have formed in the pallet deck on the inside portion of the corner posts. Since the side reinforcers prevented the pallet post from pushing up through the pallet base into the bottom adapter, the pallet was considered to have passed MIL-STD-1660 testing.

H. Pallet 8. Pallet No. 1 from the first submission of pallets and adapters with the strengthening plates added to the bottom side of the pallet base above the four corner posts.

Date:	24 June 1996
Weight:	2,035 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,985 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 215 rpm in the longitudinal orientation and 90 minutes at 170 rpm in the lateral orientation. Upon completion of the longitudinal vibration, the pallet was elevated and inspected from the bottom side. Small cracks were noted to have formed in the pallet posts along the skid and two cracks were noted to have formed in two of the corner posts next to the strengthening plates.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 15-inches on all four sides. No change in the cracks was noted after the completion of the rotational drops.

4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the top-lift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. The cracks that were noted after the longitudinal orientation of the repetitive shock test had not propagated. No cracking was noted

in the pallet deck material.

I. Pallet 9. Pallet No. 2 from the third submission of pallets and adapters. The bottom adapter and pallet were modified to accept the larger adapter pin AC200000453-6 and the side reinforcers on the four corner posts. The second set of side reinforcers used extended up to the bottom of the pallet base on both sides of the corner posts.

Date:	25 June 1996
Weight:	2,035 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,985 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 220 rpm in the longitudinal orientation and 90 minutes at 165 rpm in the lateral orientation. Upon completion of the longitudinal vibration, the pallet was elevated and inspected from the bottom side. Small cracks were noted to have formed in the pallet posts along the skid.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 15-inches on all four sides. No change in the cracks was noted after the completion of the rotational drops.

4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the top-lift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. The cracks that were noted after the longitudinal orientation of the repetitive shock test had not propagated. Minor cracking was noted to have formed in the pallet deck material at the inside corners of the four corner posts. Since the side reinforcers prevented the pallet post from pushing up through the pallet base into the bottom adapter, the pallet was considered to have passed MIL-STD-1660 testing.

J. Pallet 10. Pallet No. 2 from the first submission of pallets and adapters with the strengthening plates added to the bottom side of the pallet base above the four corner posts.

Date:	26 June 1996
Weight:	2,035 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 8,985 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 225 rpm in the longitudinal orientation and 90 minutes at 170 rpm in the lateral orientation. Upon completion of the longitudinal vibration, the pallet was elevated and inspected from the bottom side. Small cracks were noted to have formed in the pallet posts along the skid.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 15-inches on all four sides. No change in the cracks was noted after the completion of the rotational drops.

4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the top-lift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. The cracks that were noted after the longitudinal orientation of the repetitive shock test had not propagated. No cracking was noted in the pallet deck material. Two cracks were also noted to have formed in two of the four corner posts next to the strengthening plates.

K. Pallet 11. Pallet No. 1 from the first article submission of pallets and adapters that was fabricated and welded by Delfasco.

Date:	18 September 1996
Weight:	2,040 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 9,000 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 205 rpm in the longitudinal orientation and 90 minutes at 175 rpm in the lateral orientation. Upon completion of the longitudinal vibration, the pallet was elevated and inspected from the bottom side. Small cracks were noted to have formed in the pallet posts along the skid.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 15-inches on all four sides. No change in the cracks was noted after the completion of the rotational drops.

4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by four points, three points, two diagonal points, two adjacent points, and one point. No shifting of the containers or permanent deformation of the top-lift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. The cracks that were noted after the longitudinal orientation of the repetitive shock test had not propagated. No cracking was noted in the pallet deck material.

L. Pallet 12. Pallet No. 2 from the first article submission of pallets and adapters that was fabricated and welded by Delfasco.

Date:	20 September 1996
Weight:	2,040 pounds
Length:	70-3/4 inches
Width:	29-3/8 inches
Height:	43-1/2 inches

1. Compression Test. The test pallet was compressed with a load force of 9,000 pounds for 60 minutes. No damage was noted as a result of this test.

2. Repetitive Shock Test. The test pallet was vibrated 90 minutes at 225 rpm in the longitudinal orientation and 90 minutes at 165 rpm in the lateral orientation. Upon completion of the longitudinal vibration, the pallet was elevated and inspected from the bottom side. Small cracks were noted to have formed in the pallet posts along the skid.

3. Edgewise Rotational Drop Test. The test pallet was edgewise rotationally dropped 15 inches on all four sides. No change in the cracks was noted after the completion of the rotational drops.

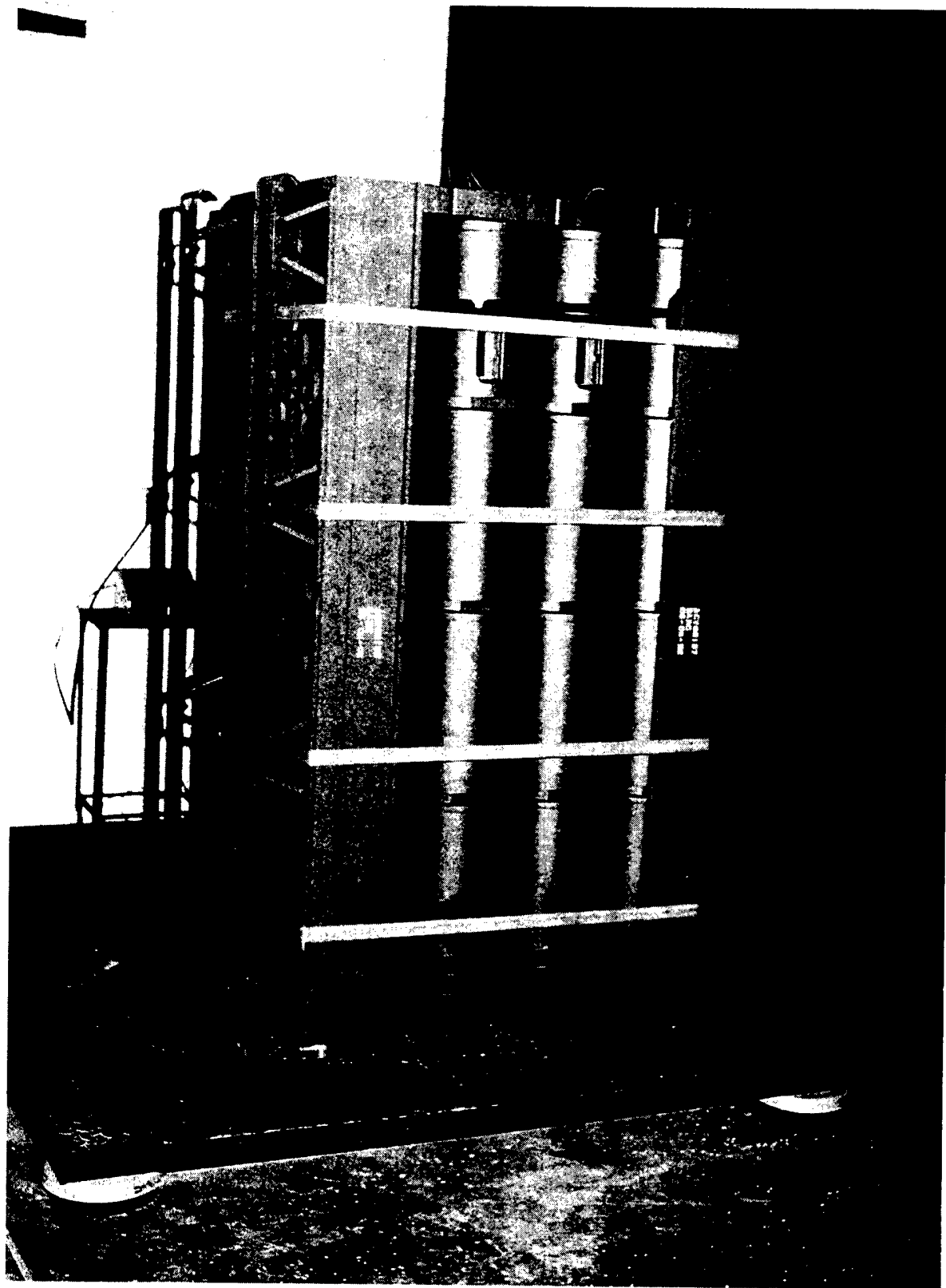
4. Sling Compatibility Test. The test pallet was lifted off of the ground using the toplift adapter by 4-points, 3-points, 2-diagonal points, 2 adjacent-points, and 1-point. No shifting of the containers or permanent deformation of the top-lift was noted.

5. Incline-Impact Test. The test pallet was incline-impacted on all four sides from a height of 8-feet. No additional damage was noted at the completion of the test.

6. Post Test Inspection. Following completion of MIL-STD-1660 testing, the pallet was disassembled and inspected for additional damage. The cracks that were noted after the longitudinal orientation of the repetitive shock test had not propagated. No cracking was noted in the pallet deck material.

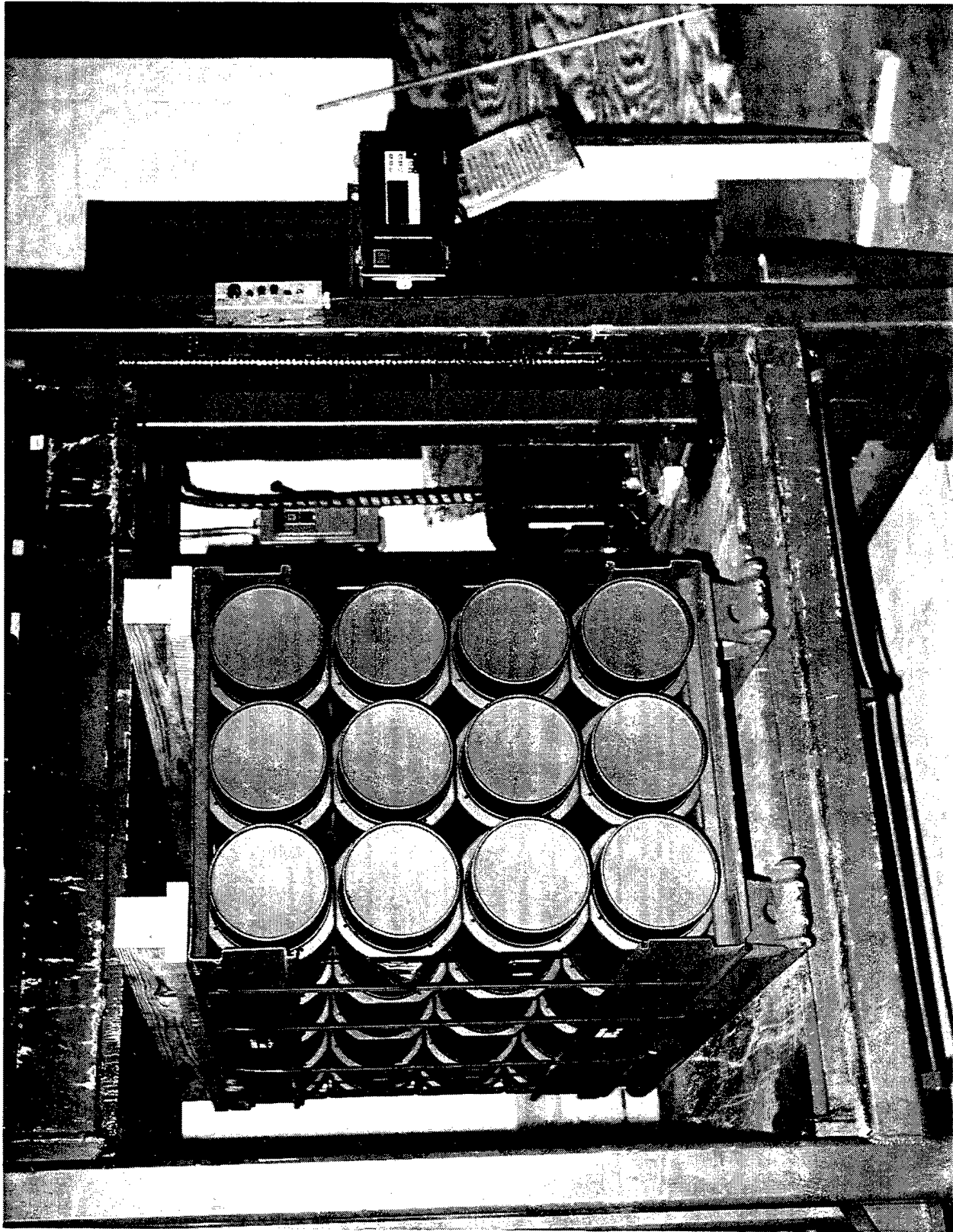
PART 6

PHOTOGRAPHS



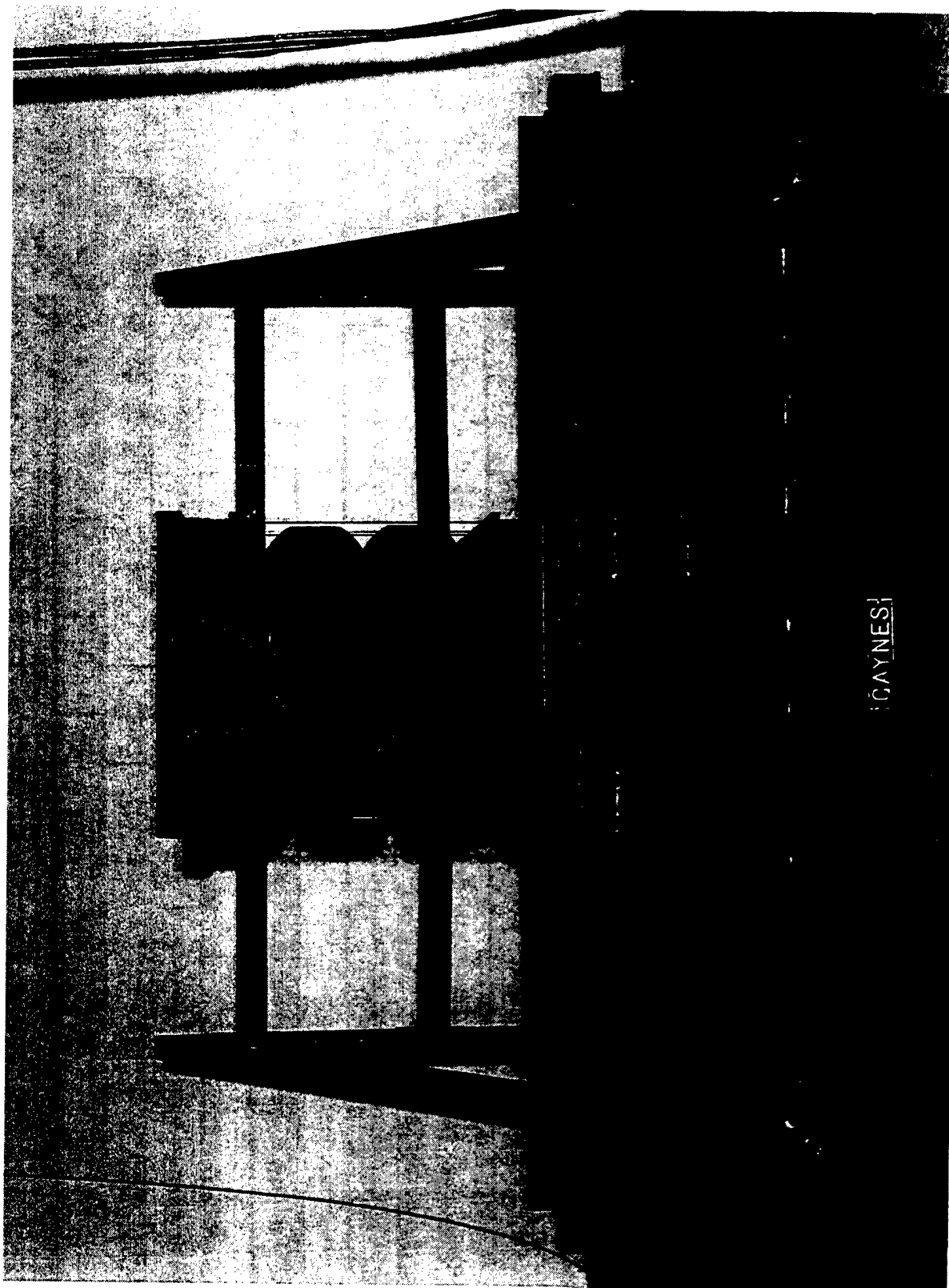
	U.S. ARMY DEFENSE AMMUNITION CENTER SAVANNA, IL	
--	--	--

PHOTO NO. A0317-SCN-96-145-2556. This photograph shows the pallet positioned on the scale during the inert loading of the containers.		
---	--	--



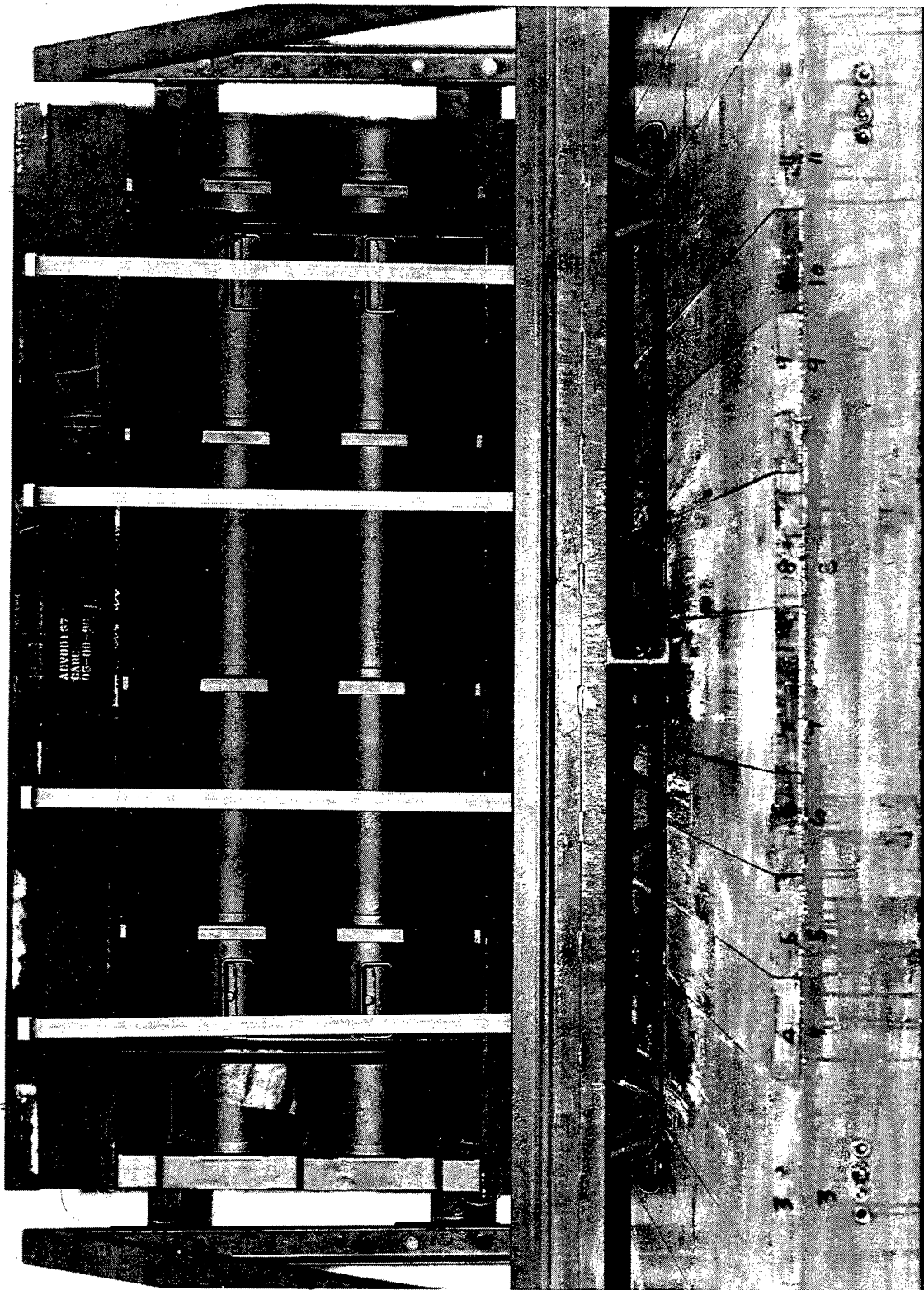
U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

PHOTO NO. A0317-SCN-96-145-2555. This photograph shows the pallet during the compression test.



CAYNES

	U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL	
PHOTO NO. A0317-SCN-96-145-4300. This photograph shows the pallet on the shaker table in the longitudinal orientation.		

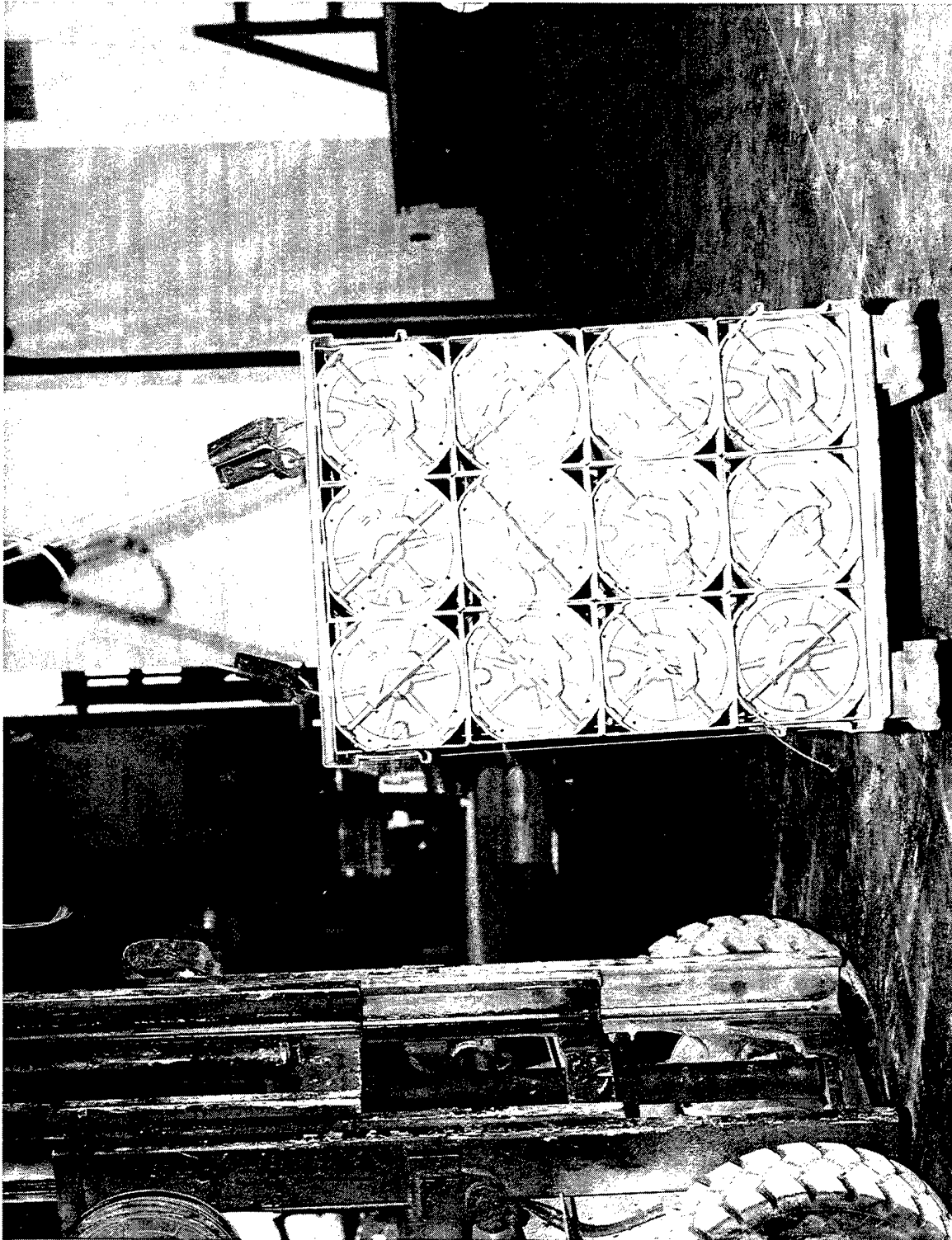


U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

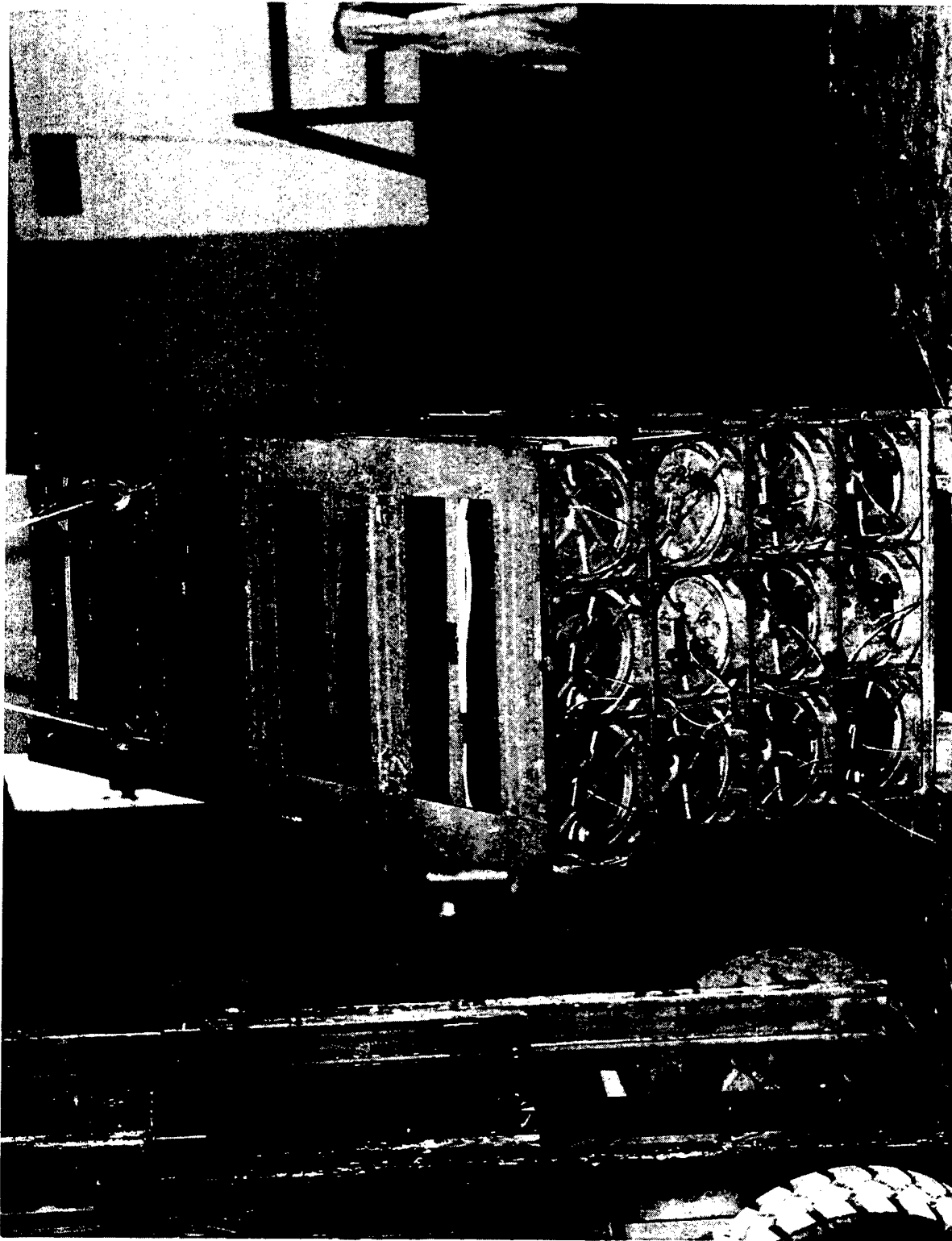
PHOTO NO. A0317-SCN-96-145-3534. This photograph shows the pallet on the shaker table in the lateral orientation.



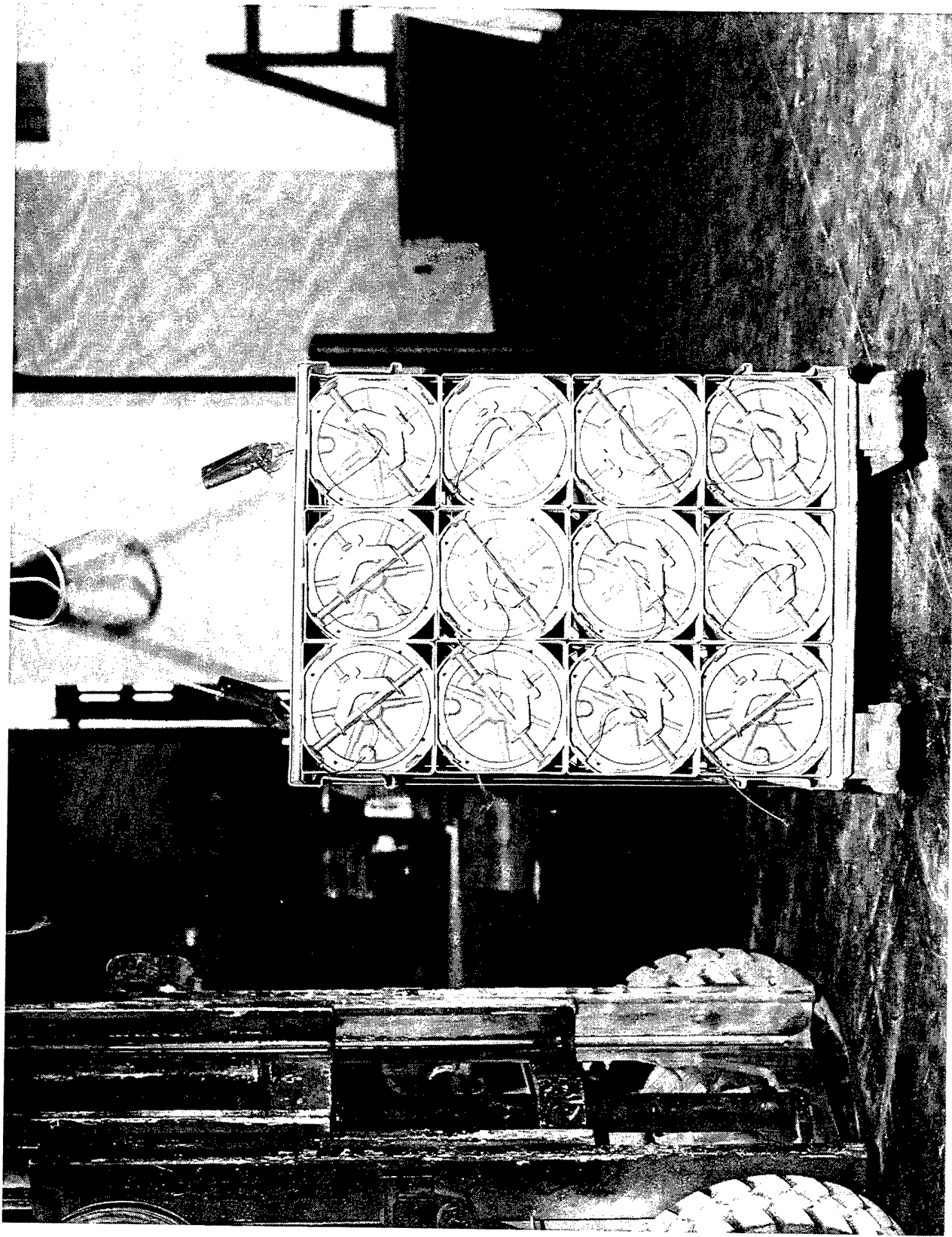
	U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL	
PHOTO NO. A0317-SCN-96-145-3517. This photograph shows the pallet prior to a lateral edgewise rotational drop.		



U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL	PHOTO NO. A0317-SCN-96-145-3520. This photograph shows the pallet being lifted by three points during the sling compatibility test.
---	---

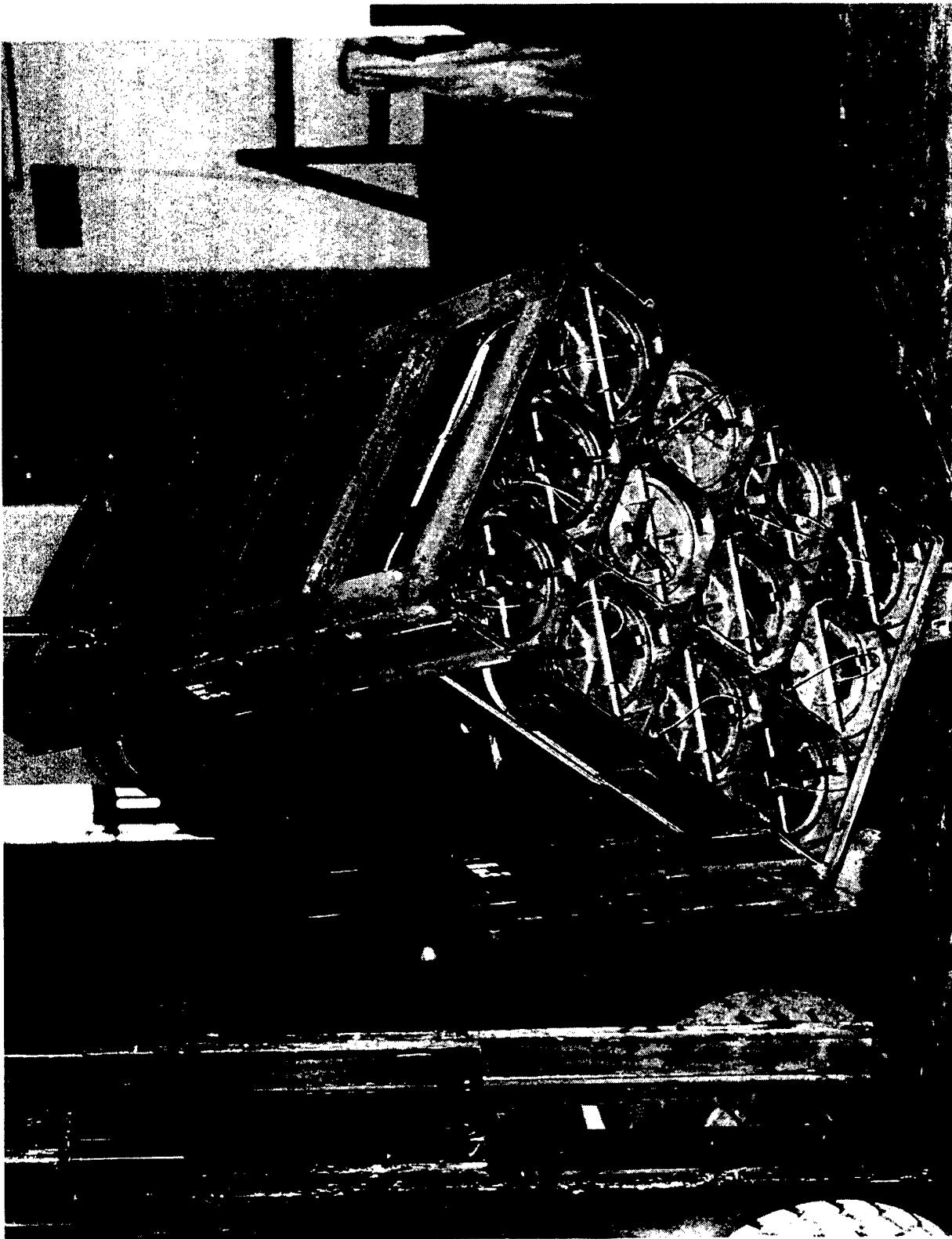


	U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL	
PHOTO NO. A0317-SCN-96-145-3522. This photograph shows the pallet being lifted by two adjacent points during the sling compatibility test.		



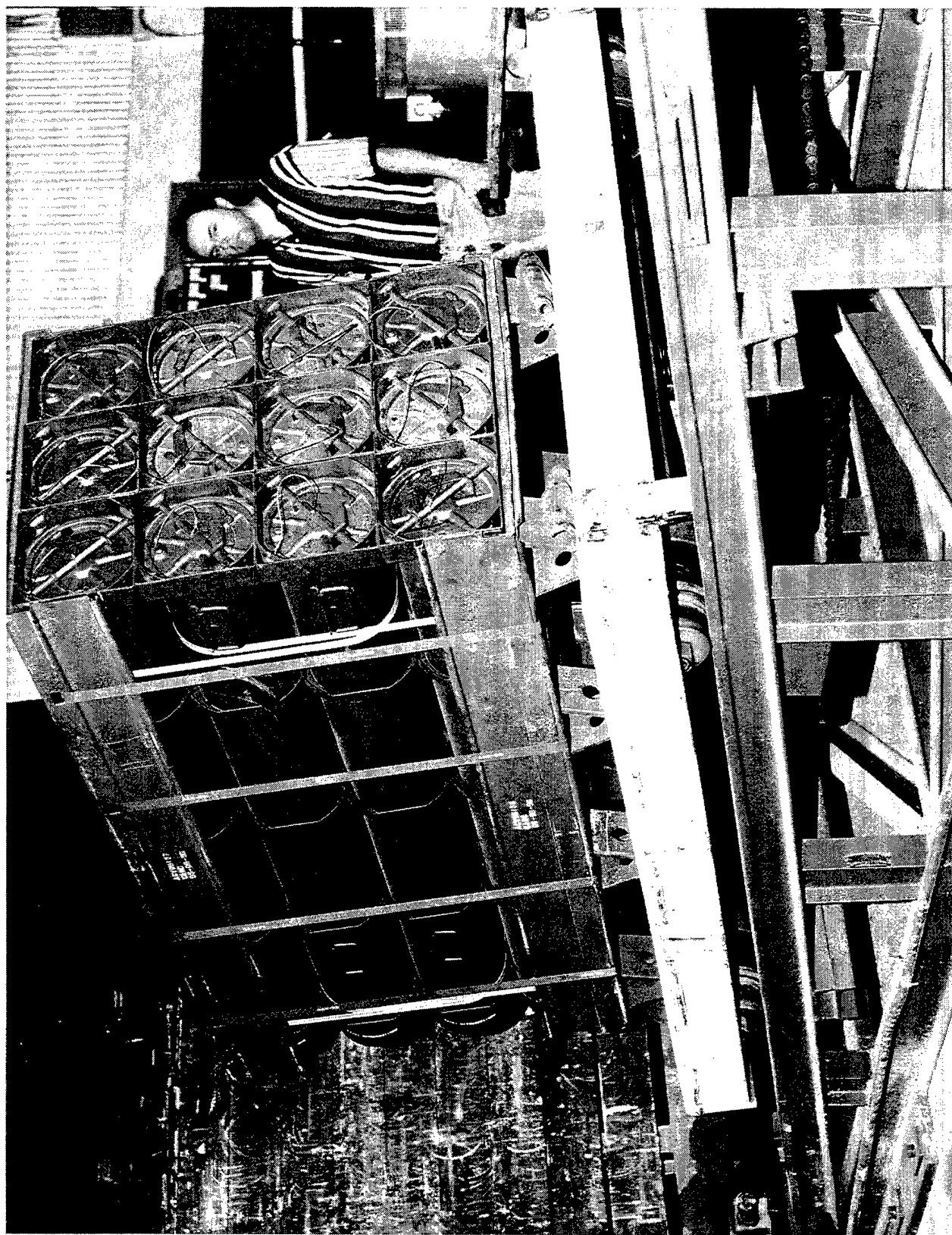
U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

PHOTO NO. A0317-SCN-96-145-3521. This photograph shows the pallet being lifted by two diagonal points during the sling compatibility test.



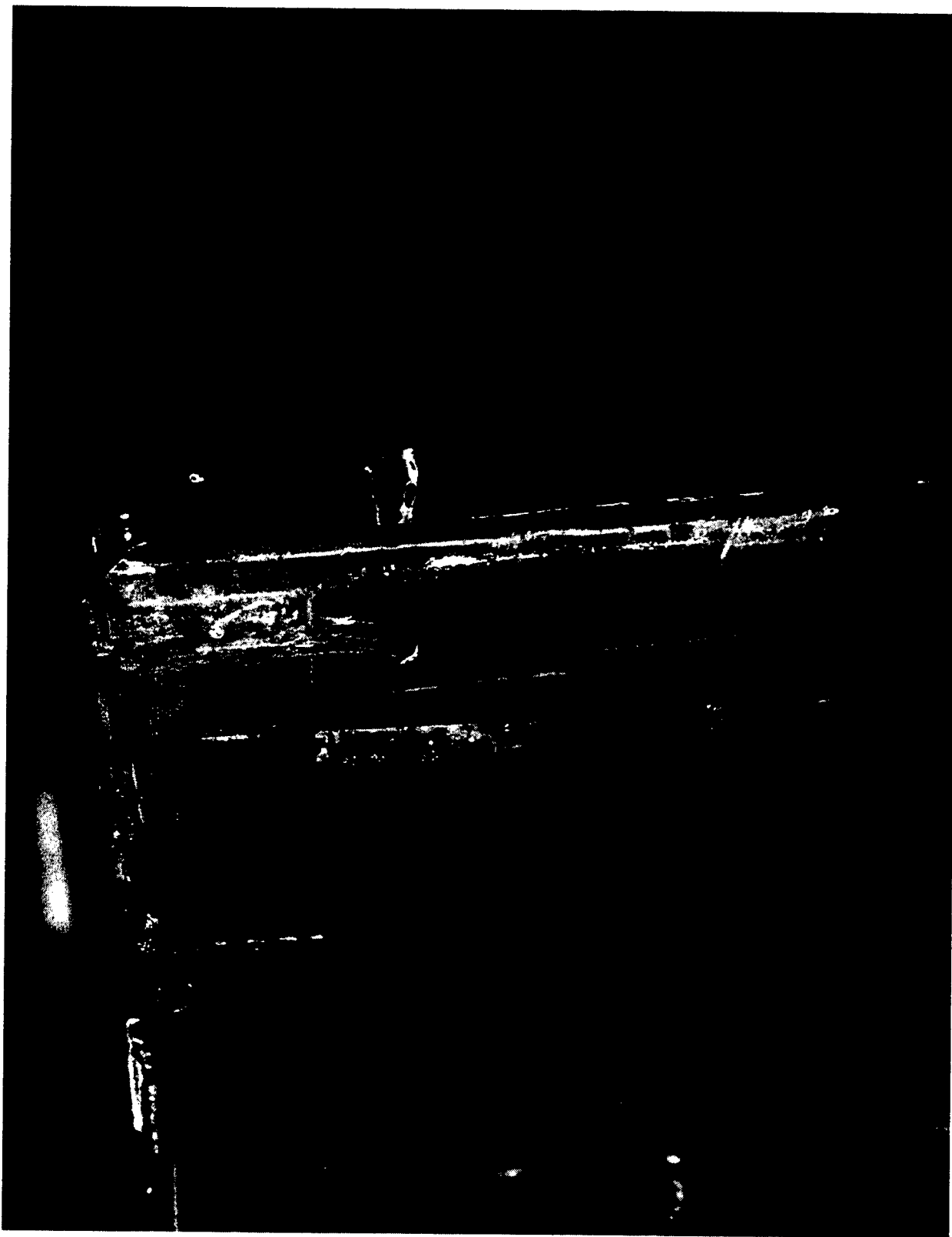
U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

PHOTO NO. A0317-SCN-96-145-3523. This photograph shows the pallet being lifted by one point during the sling compatibility test.



U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

PHOTO NO. A0317-SCN-96-145-3524. This photograph shows the pallet on the incline-impact tester.



	U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL	
PHOTO NO. A0317-SCN-96-145-3541. This photograph shows some of the damage that occurred during MIL-STD-1660 testing.		

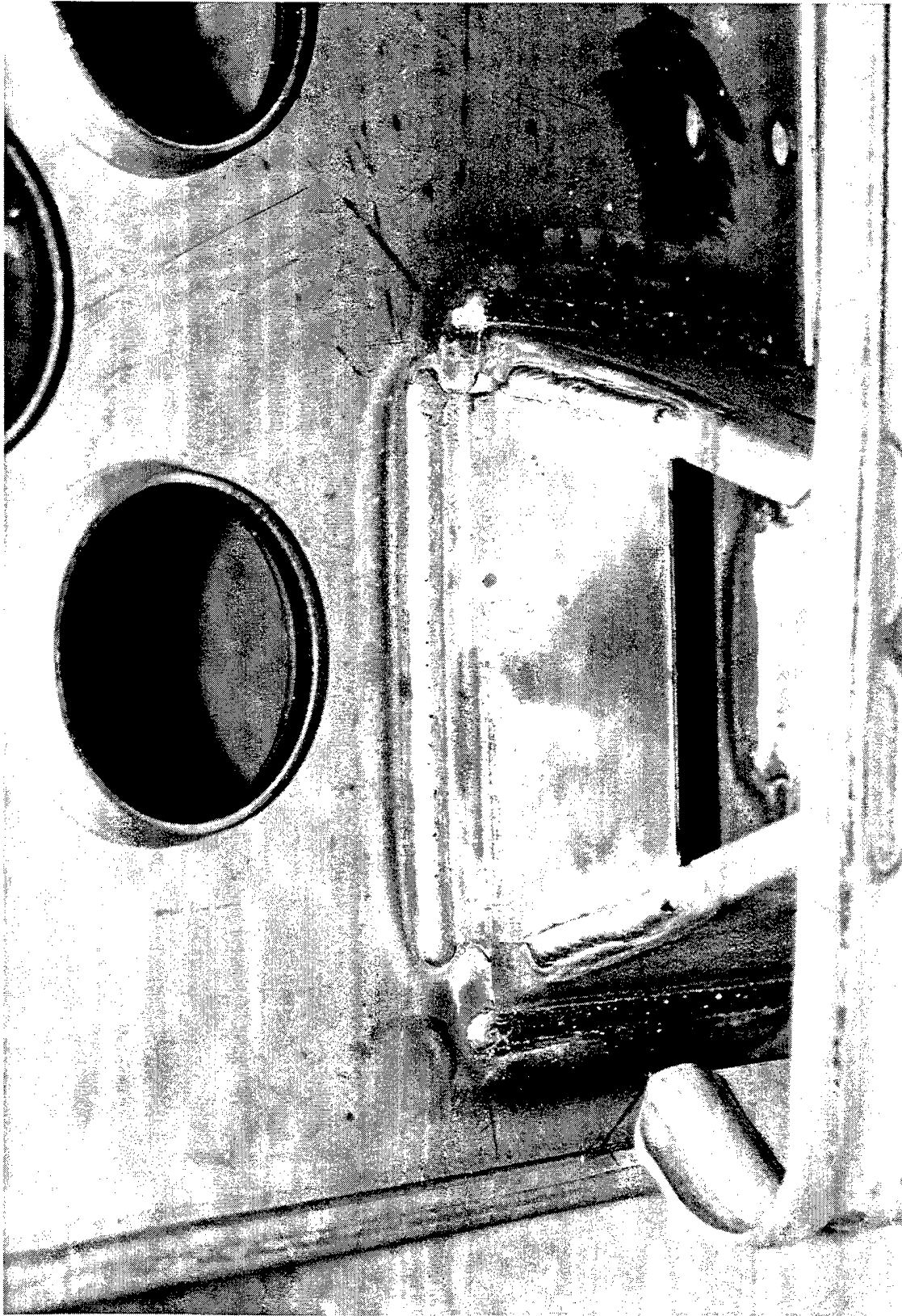


U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

PHOTO NO. A0317-SCN-96-145-3543. This photograph shows additional damage that occurred during MIL-STD-1660 testing.



	U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL
PHOTO NO. A0317-SCN-96-4010. This photograph shows the outer side reinforcer that was added to the pallet post in an effort to stop the cracking that was occurring in the pallet deck.	



U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

PHOTO NO. A0317-SCN-96-4014. This photograph shows the inner side reinforcer that was added to the pallet post in an effort to stop the cracking that was occurring in the pallet deck.



	U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL	
PHOTO NO. A0317-SCN-96-4023. This photograph shows one of the cracks that formed in the pallet deck due to the addition of the side reinforcer.		



U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

PHOTO NO. A0317-SCN-96-4012. This photograph shows the alternate position for the outer side reinforcer. The alternate position of the outer side reinforcer only allows for welding to the pallet deck from inside the pallet post.



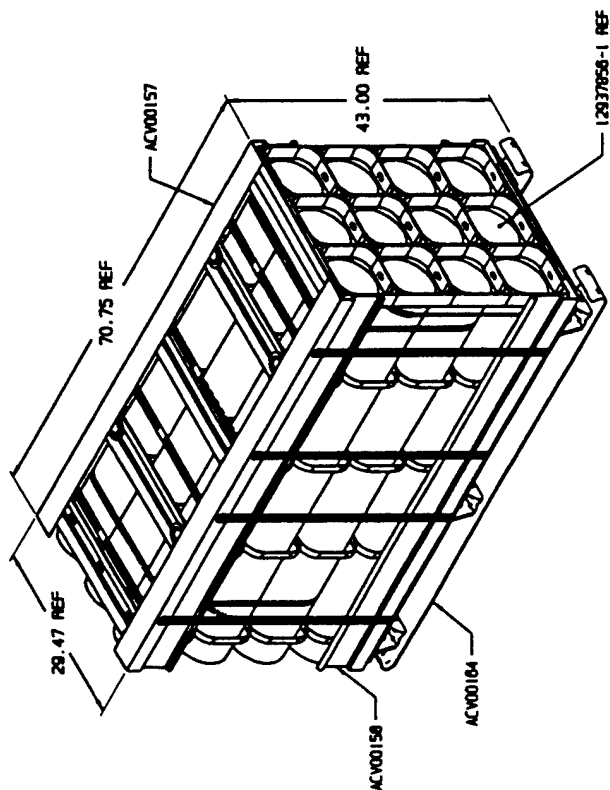
U.S. ARMY DEFENSE AMMUNITION CENTER - SAVANNA, IL

PHOTO NO. A0317-SCN-96-4031. This photograph shows the extra piece of metal that was welded to the pallet deck to strengthen the area where the corner posts attach.

PART 7

DRAWINGS

REV	DESCRIPTION	DATE	BY
1	PRODUCT BASELINE	94-03-25	94-03-25 SCHULTZ
2	REV 1 (REV 1)	95-06-22	95-06-22
3	REV 2 (REV 2)	95-06-22	95-06-22



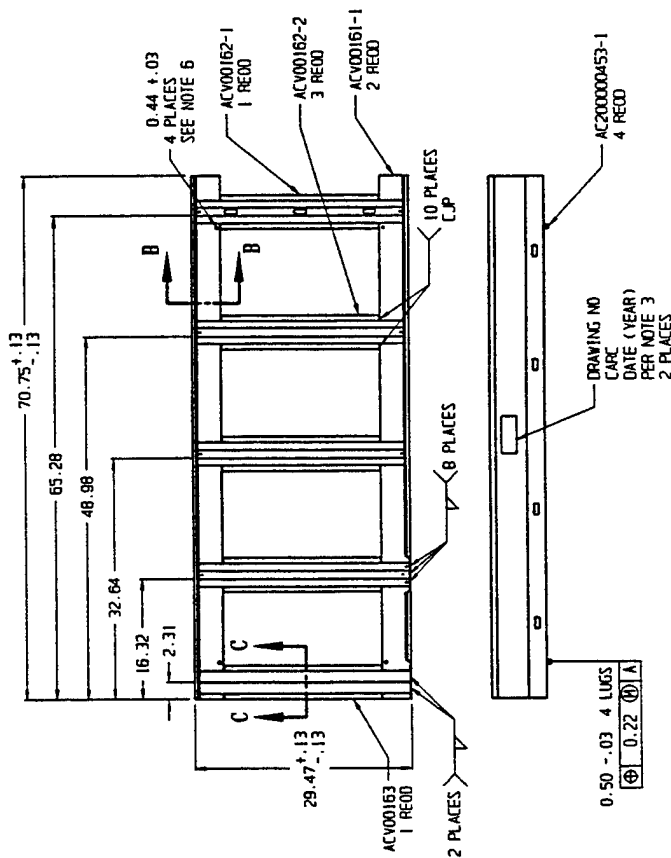
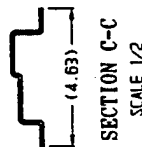
COMBINATION OF ADOPTED ITEMS	PART NO
PALLET - SPECIAL SIZE 70.75 X 29.31 SHEET METAL	ACV00164
TOP ASSEMBLY - PALLET ADAPTER PAISI CONTAINER	ACV00157
BOTTOM ASSEMBLY - PALLET ADAPTER PAISI CONTAINER	ACV00158
UNITIZATION DRAWING	19-48-4231/60-20M1006

DISTRIBUTION STATEMENT A:

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

DESIGN ZIGGY 94-03-25 B.K. SCS SCHULTZ		DESIGN ZIGGY 94-03-25 B.K. SCS SCHULTZ	
PALLET ADAPTER 19-48-4231/60-20M1006		PALLET ADAPTER 19-48-4231/60-20M1006	
PART NO 19-48-4231/60-20M1006		PART NO 19-48-4231/60-20M1006	
APPLICATION PALLET ADAPTER		APPLICATION PALLET ADAPTER	
COMBINATION OF ADOPTED ITEMS, PALLET AND PALLET ADAPTER, UNITIZATION OF PAISI CONTAINER		COMBINATION OF ADOPTED ITEMS, PALLET AND PALLET ADAPTER, UNITIZATION OF PAISI CONTAINER	
ACV00155		ACV00155	

- NOTES:
1. MIL-A-2550, ANSI/ANS A2.4-66, ANSI Y14.5M-1982 AND MIL-A-70788 APPLY.
 2. PROTECTIVE FINISH SHALL BE IN ACCORDANCE WITH DNG AC200000423. COLOR SHALL BE GREEN NO 383 PER MIL-C-46168 (FED STD 595 NO 34084).
 3. MARKING PAINT SHALL BE IN ACCORDANCE WITH DNG AC200000423. COLOR SHALL BE WHITE NO 37875 0.50 INCH HIGH LETTERS.
 4. WELDMENT CONSTRUCTION SPEC MIL-STD-1281, CLASS 1, APPLIES.
 5. CHAMFERED CORNER SHALL NOT BE WELDED IN ORDER TO ALLOW ADDITIONAL DRAIN HOLE.
 6. ALTERNATE ALIGNING LUG PART NO AC200000453-3 MAY BE USED INSTEAD OF PART NO AC200000453-1, IF ALTERNATE LUG IS USED, USE 0.52 4 PLACES.
 7. DIMENSIONS OF THE RETAINER RING MAY BE VARIED TO INSURE THE RING'S POSITION WHEN LIFTED VERTICALLY SHALL BE BETWEEN 75 AND 85 DEGREES WITH THE HORIZONTAL. THIS DIMENSION ASSURES THAT THE RING SHALL BE SELF NESTING WHEN NOT IN USE.



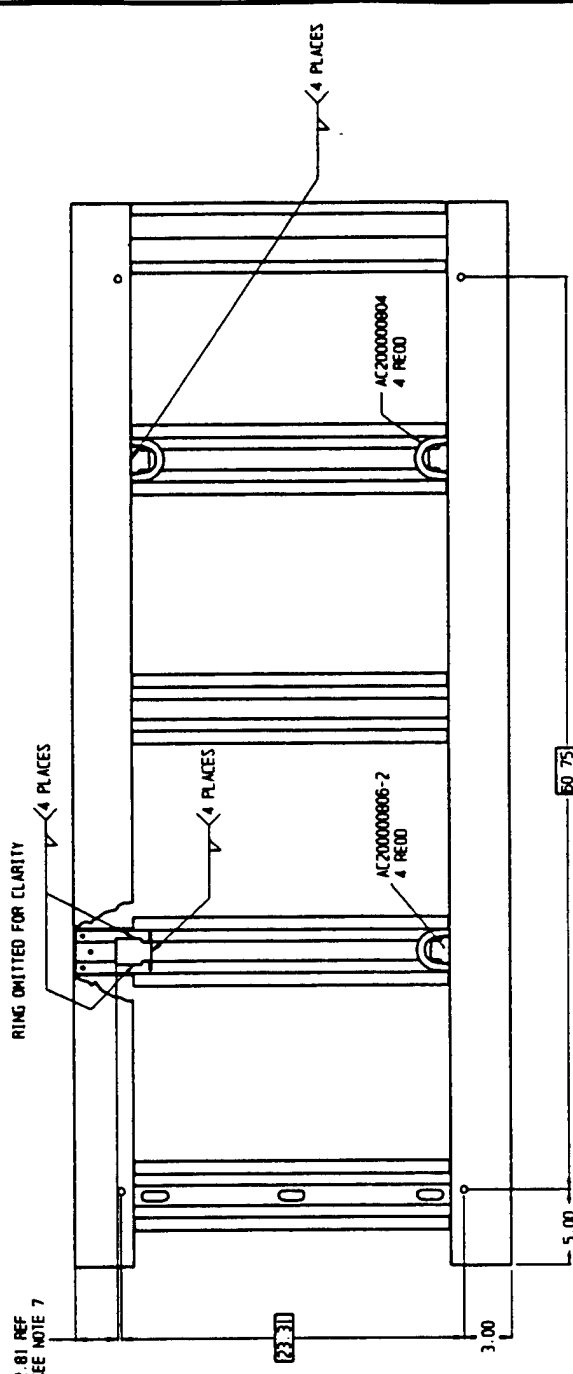
A	A
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

PART NO ACV00157

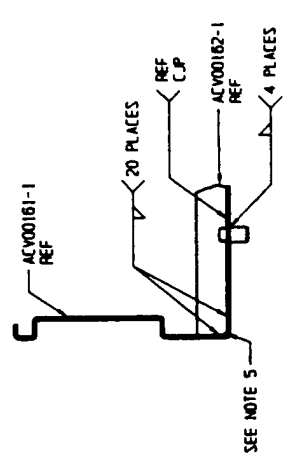
DESIGN ACTIVITY		APPROVED, MARKED AND CHECKED DATE: 94-03-25	
B.K. SCHULTZ	SCHULTZ	TOP ASSEMBLY PALLET ADAPTER PALLET CONTAINER	
J.S. JAK	I.J. NICHOLS	DATE CODE	ACV00157
WILLIAM F. ERNST	WILLIAM F. ERNST	UNIT	UNIT
SCALE	1/8	UNIT	1/8
SHEET 1 OF 2		SHEET 1 OF 2	

DISTRIBUTION STATEMENT A,
APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

REV	DESCRIPTION	DATE	APPROVED
1	PRODUCT BASELINE	94-03-25	SCHULTZ
2	FOR MFG	94-03-25	
3	FOR MFG	95-06-22	
4	(FOR MFG) 95-06-22		
5	(FOR MFG) 95-06-22		
6	(FOR MFG) 95-06-22		



VIEW A-A



SECTION B-B
SCALE 1/2

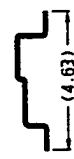
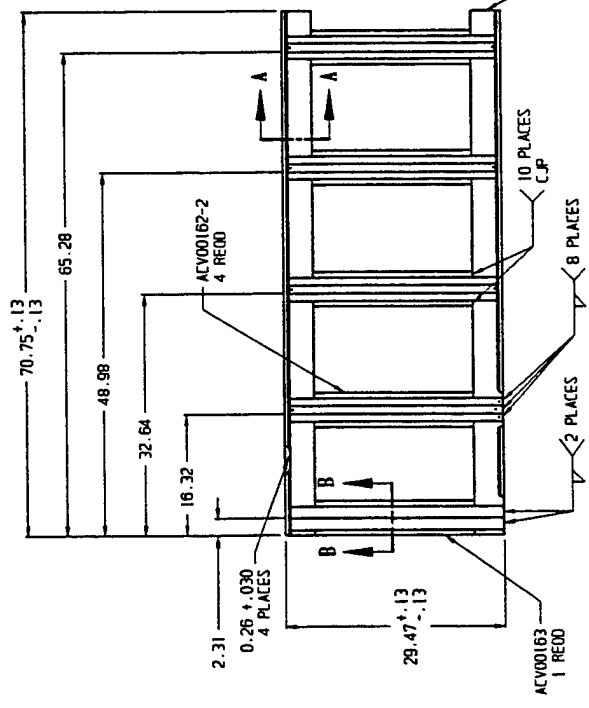
REV	DESCRIPTION	DATE	APPROVED
1	94-03-25		
2	94-03-25		
3	94-03-25		
4	94-03-25		
5	94-03-25		
6	94-03-25		
7	94-03-25		
8	94-03-25		
9	94-03-25		
10	94-03-25		
11	94-03-25		
12	94-03-25		
13	94-03-25		
14	94-03-25		
15	94-03-25		
16	94-03-25		
17	94-03-25		
18	94-03-25		
19	94-03-25		
20	94-03-25		
21	94-03-25		
22	94-03-25		
23	94-03-25		
24	94-03-25		
25	94-03-25		
26	94-03-25		
27	94-03-25		
28	94-03-25		
29	94-03-25		
30	94-03-25		
31	94-03-25		
32	94-03-25		
33	94-03-25		
34	94-03-25		
35	94-03-25		
36	94-03-25		
37	94-03-25		
38	94-03-25		
39	94-03-25		
40	94-03-25		
41	94-03-25		
42	94-03-25		
43	94-03-25		
44	94-03-25		
45	94-03-25		
46	94-03-25		
47	94-03-25		
48	94-03-25		
49	94-03-25		
50	94-03-25		
51	94-03-25		
52	94-03-25		
53	94-03-25		
54	94-03-25		
55	94-03-25		
56	94-03-25		
57	94-03-25		
58	94-03-25		
59	94-03-25		
60	94-03-25		
61	94-03-25		
62	94-03-25		
63	94-03-25		
64	94-03-25		
65	94-03-25		
66	94-03-25		
67	94-03-25		
68	94-03-25		
69	94-03-25		
70	94-03-25		
71	94-03-25		
72	94-03-25		
73	94-03-25		
74	94-03-25		
75	94-03-25		
76	94-03-25		
77	94-03-25		
78	94-03-25		
79	94-03-25		
80	94-03-25		
81	94-03-25		
82	94-03-25		
83	94-03-25		
84	94-03-25		
85	94-03-25		
86	94-03-25		
87	94-03-25		
88	94-03-25		
89	94-03-25		
90	94-03-25		
91	94-03-25		
92	94-03-25		
93	94-03-25		
94	94-03-25		
95	94-03-25		
96	94-03-25		
97	94-03-25		
98	94-03-25		
99	94-03-25		
100	94-03-25		

DISTRIBUTION STATEMENT A:
APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

ACV00157

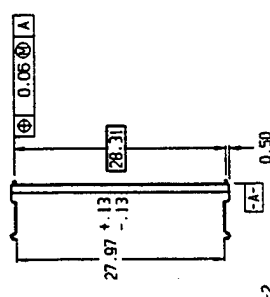
NOTES:

1. MIL-A-2550, ANSIC/ANS A2.4-88, ANSI Y14.5M-1982 AND MIL-A-70788 APPLY.
2. PROTECTIVE FINISH SHALL BE IN ACCORDANCE WITH DNG AC200000423.
3. COLOR SHALL BE GREEN NO. 383 PER MIL-C-46168 (FED STD 595 NO. 34094).
4. MARKING PAINT SHALL BE IN ACCORDANCE WITH DNG AC200000423.
5. COLOR SHALL BE WHITE NO. 37875 0.50 INCH HIGH LETTERS.
6. WELDMENT CONSTRUCTION SPEC MIL-STD-1261, CLASS 1, APPLIES.
7. CHAMFERED CORNER SHALL NOT BE WELDED IN ORDER TO ALLOW ADDITIONAL DRAIN HOLE.
8. ALTERNATE ALIGNING LUG DNG AC200000453-5 MAY BE USED INSTEAD OF DNG AC200000453-2. IF THE ALTERNATE LUG IS USED, USE 0.32 ± 0.03 IN FOUR (4) PLACES.

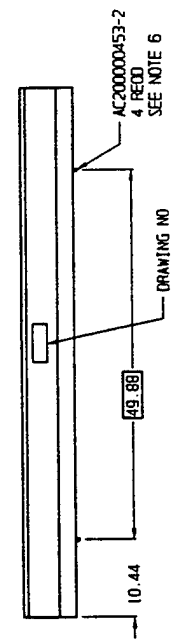


SECTION B-B
SCALE 1/2

0.31 ± .03 4 LUGS



SECTION A-A
SCALE 1/4



PART NO ACV00158

REV	DESCRIPTION	DATE	APPROVED
1	PRODUCT BASELINE	94-03-25	SCHULTZ
2	FOR MFG2001	94-03-25	
3	FOR MFG3003	95-06-22	
4	(ECP MFG3004)	95-02-22	

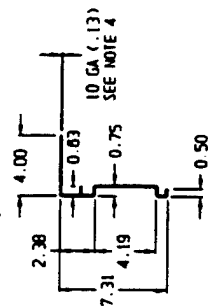
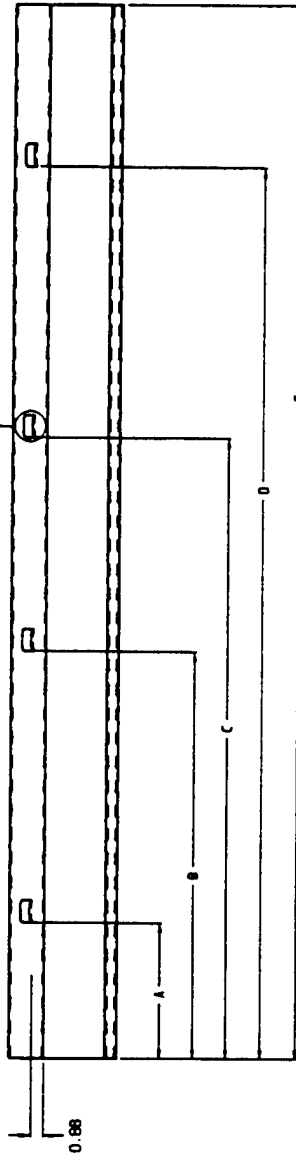
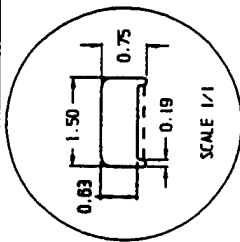
ITEM	94-03-25	DESCRIPTION	ACV00158
QTY	1	UNIT	BT
DATE	94-03-25	BY	WILLIAM F. ERNST
APPROVED		FOR	WILLIAM F. ERNST
REVISION		DATE	
1		DATE	
2		DATE	
3		DATE	
4		DATE	
5		DATE	
6		DATE	
7		DATE	
8		DATE	
9		DATE	
10		DATE	
11		DATE	
12		DATE	
13		DATE	
14		DATE	
15		DATE	
16		DATE	
17		DATE	
18		DATE	
19		DATE	
20		DATE	
21		DATE	
22		DATE	
23		DATE	
24		DATE	
25		DATE	
26		DATE	
27		DATE	
28		DATE	
29		DATE	
30		DATE	
31		DATE	
32		DATE	
33		DATE	
34		DATE	
35		DATE	
36		DATE	
37		DATE	
38		DATE	
39		DATE	
40		DATE	
41		DATE	
42		DATE	
43		DATE	
44		DATE	
45		DATE	
46		DATE	
47		DATE	
48		DATE	
49		DATE	
50		DATE	
51		DATE	
52		DATE	
53		DATE	
54		DATE	
55		DATE	
56		DATE	
57		DATE	
58		DATE	
59		DATE	
60		DATE	
61		DATE	
62		DATE	
63		DATE	
64		DATE	
65		DATE	
66		DATE	
67		DATE	
68		DATE	
69		DATE	
70		DATE	
71		DATE	
72		DATE	
73		DATE	
74		DATE	
75		DATE	
76		DATE	
77		DATE	
78		DATE	
79		DATE	
80		DATE	
81		DATE	
82		DATE	
83		DATE	
84		DATE	
85		DATE	
86		DATE	
87		DATE	
88		DATE	
89		DATE	
90		DATE	
91		DATE	
92		DATE	
93		DATE	
94		DATE	
95		DATE	
96		DATE	
97		DATE	
98		DATE	
99		DATE	
100		DATE	

DISTRIBUTION STATEMENT A
APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

NOTES:

1. BEND RADIUS 0.13 INCH MAX WHERE NOT NOTED.
2. ANSI Y14.5M-1982, MIL-A-2550 AND MIL-A-70788 APPLY.
3. MATERIAL: SHEET, SAE OR ANSI 1005-1010 STEEL, CARBON, COLD ROLL OR HOT ROLL.
4. PER ASTM A568, (ASTM A368 OR A568).

PARTS ACV00161-2 AND ACV00161-4 MAY BE MADE OF 12 GA (.10) MATERIAL.



DIMENSION					
PART NO	A	B	C	D	E
ACV00161-1	9.75	24.75	44.50	59.50	70.75
ACV00161-2	---	---	---	---	70.75
ACV00161-3	9.00	27.00	49.92	68.00	76.50
ACV00161-4	---	---	---	---	76.50

DISTRIBUTION STATEMENT A:

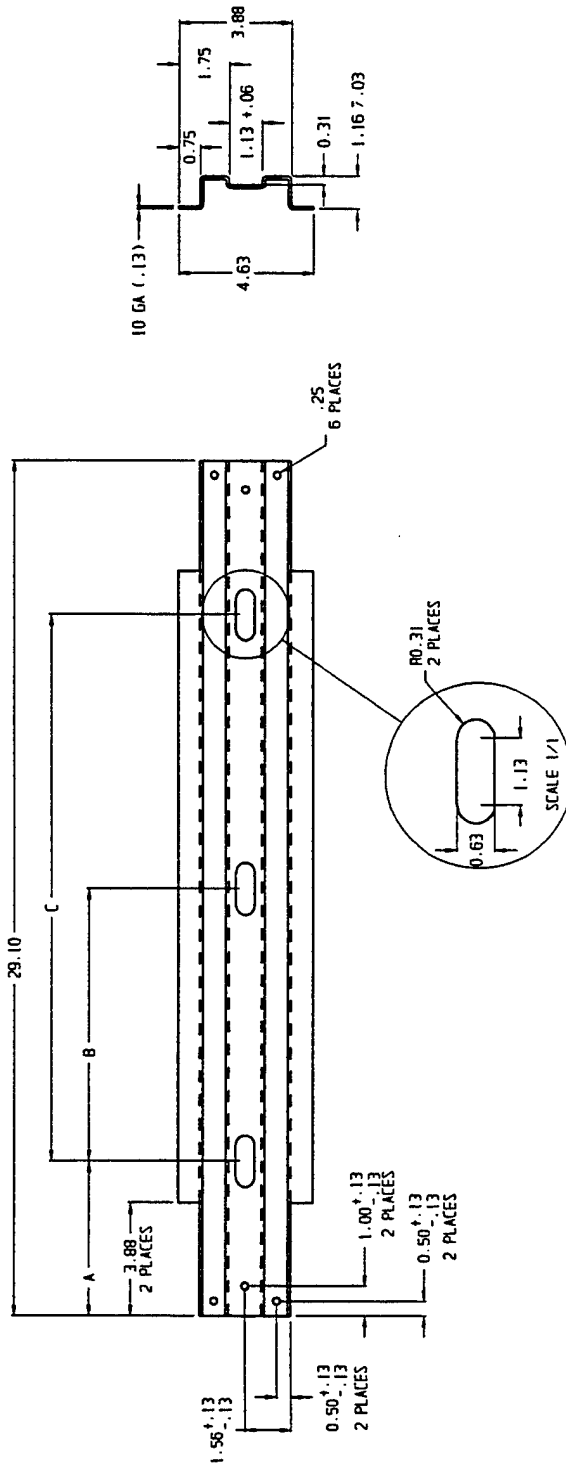
APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

SEE PARTS LIST

DESIGN ACTIVITY PRODUCT: SIDE RAIL PROJECT: 94-03-25 DRAWN: J.S. JENKINS CHECKED: M.F. ERNST APPROVED: WILLIAM F. ERNST		DATE: 94-03-25 BY: J.S. JENKINS DATE: 94-03-25 BY: M.F. ERNST DATE: 94-03-25 BY: WILLIAM F. ERNST
PART NAME: SIDE RAIL PART NO: ACV00161		SCALE: 1/1 SHEET: 1 OF 1

REV	DESCRIPTION	DATE	APPROVED
1	PRODUCT BASELINE	94-03-25	94-03-25 SCHULTZ
2	REVISED	94-03-25	94-03-25 SCHULTZ
3	REVISED	94-03-25	94-03-25 SCHULTZ

- NOTES:
1. BEND RADIUS 0.13 INCH MAX WHERE NOT NOTED.
 2. ANST Y14.5N-1982, MIL-A-2550 AND MIL-A-70789 APPLY.
 3. MATERIAL: SHEET, SAE OR ANST 1005-1010 STEEL, CARBON, COLD ROLL OR HOT ROLL, PER ANST A568, (ASTM A366 OR A568).



DIMENSION			
PART NO	A	B	C
ACV00162-1	5.30	9.25	18.50
ACV00162-2	----	----	----

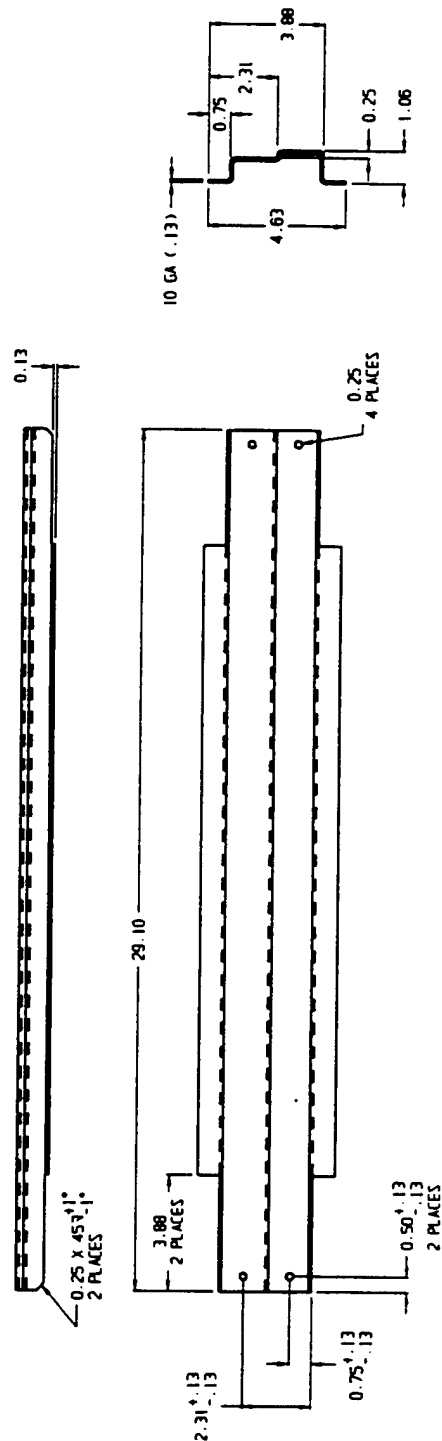
DISTRIBUTION STATEMENT A.
APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

REV	DESCRIPTION	REVISION	DATE	APPROVED
1	PRODUCT BASELINE		94-03-25	SCHULTZ
2	ERR 1442001	94-03-25	94-03-25	SCHULTZ
3	ERR 1442001	94-03-25	94-03-25	SCHULTZ
4	ERR 1442001	94-03-25	94-03-25	SCHULTZ
5	ERR 1442001	94-03-25	94-03-25	SCHULTZ
6	ERR 1442001	94-03-25	94-03-25	SCHULTZ
7	ERR 1442001	94-03-25	94-03-25	SCHULTZ
8	ERR 1442001	94-03-25	94-03-25	SCHULTZ
9	ERR 1442001	94-03-25	94-03-25	SCHULTZ
10	ERR 1442001	94-03-25	94-03-25	SCHULTZ

SEE PARTS LIST

DESIGN ACTIVITY		DESIGN ACTIVITY	
DATE	94-03-25	DATE	94-03-25
BY	B.L.K. SWS	BY	SCHULTZ
CHKD	J.S. JPK	CHKD	T.J. MICHELS
APPROVED	WILLIAM F. ERNST	APPROVED	WILLIAM F. ERNST
PART NAME		PART NAME	
ACV00162-1		ACV00162-1	
ACV00162-2		ACV00162-2	
ACV00162-3		ACV00162-3	
ACV00162-4		ACV00162-4	
ACV00162-5		ACV00162-5	
ACV00162-6		ACV00162-6	
ACV00162-7		ACV00162-7	
ACV00162-8		ACV00162-8	
ACV00162-9		ACV00162-9	
ACV00162-10		ACV00162-10	
ACV00162-11		ACV00162-11	
ACV00162-12		ACV00162-12	
ACV00162-13		ACV00162-13	
ACV00162-14		ACV00162-14	
ACV00162-15		ACV00162-15	
ACV00162-16		ACV00162-16	
ACV00162-17		ACV00162-17	
ACV00162-18		ACV00162-18	
ACV00162-19		ACV00162-19	
ACV00162-20		ACV00162-20	
ACV00162-21		ACV00162-21	
ACV00162-22		ACV00162-22	
ACV00162-23		ACV00162-23	
ACV00162-24		ACV00162-24	
ACV00162-25		ACV00162-25	
ACV00162-26		ACV00162-26	
ACV00162-27		ACV00162-27	
ACV00162-28		ACV00162-28	
ACV00162-29		ACV00162-29	
ACV00162-30		ACV00162-30	
ACV00162-31		ACV00162-31	
ACV00162-32		ACV00162-32	
ACV00162-33		ACV00162-33	
ACV00162-34		ACV00162-34	
ACV00162-35		ACV00162-35	
ACV00162-36		ACV00162-36	
ACV00162-37		ACV00162-37	
ACV00162-38		ACV00162-38	
ACV00162-39		ACV00162-39	
ACV00162-40		ACV00162-40	
ACV00162-41		ACV00162-41	
ACV00162-42		ACV00162-42	
ACV00162-43		ACV00162-43	
ACV00162-44		ACV00162-44	
ACV00162-45		ACV00162-45	
ACV00162-46		ACV00162-46	
ACV00162-47		ACV00162-47	
ACV00162-48		ACV00162-48	
ACV00162-49		ACV00162-49	
ACV00162-50		ACV00162-50	
ACV00162-51		ACV00162-51	
ACV00162-52		ACV00162-52	
ACV00162-53		ACV00162-53	
ACV00162-54		ACV00162-54	
ACV00162-55		ACV00162-55	
ACV00162-56		ACV00162-56	
ACV00162-57		ACV00162-57	
ACV00162-58		ACV00162-58	
ACV00162-59		ACV00162-59	
ACV00162-60		ACV00162-60	
ACV00162-61		ACV00162-61	
ACV00162-62		ACV00162-62	
ACV00162-63		ACV00162-63	
ACV00162-64		ACV00162-64	
ACV00162-65		ACV00162-65	
ACV00162-66		ACV00162-66	
ACV00162-67		ACV00162-67	
ACV00162-68		ACV00162-68	
ACV00162-69		ACV00162-69	
ACV00162-70		ACV00162-70	
ACV00162-71		ACV00162-71	
ACV00162-72		ACV00162-72	
ACV00162-73		ACV00162-73	
ACV00162-74		ACV00162-74	
ACV00162-75		ACV00162-75	
ACV00162-76		ACV00162-76	
ACV00162-77		ACV00162-77	
ACV00162-78		ACV00162-78	
ACV00162-79		ACV00162-79	
ACV00162-80		ACV00162-80	
ACV00162-81		ACV00162-81	
ACV00162-82		ACV00162-82	
ACV00162-83		ACV00162-83	
ACV00162-84		ACV00162-84	
ACV00162-85		ACV00162-85	
ACV00162-86		ACV00162-86	
ACV00162-87		ACV00162-87	
ACV00162-88		ACV00162-88	
ACV00162-89		ACV00162-89	
ACV00162-90		ACV00162-90	
ACV00162-91		ACV00162-91	
ACV00162-92		ACV00162-92	
ACV00162-93		ACV00162-93	
ACV00162-94		ACV00162-94	
ACV00162-95		ACV00162-95	
ACV00162-96		ACV00162-96	
ACV00162-97		ACV00162-97	
ACV00162-98		ACV00162-98	
ACV00162-99		ACV00162-99	
ACV00162-100		ACV00162-100	
ACV00162-101		ACV00162-101	
ACV00162-102		ACV00162-102	
ACV00162-103		ACV00162-103	
ACV00162-104		ACV00162-104	
ACV00162-105		ACV00162-105	
ACV00162-106		ACV00162-106	
ACV00162-107		ACV00162-107	
ACV00162-108		ACV00162-108	
ACV00162-109		ACV00162-109	
ACV00162-110		ACV00162-110	
ACV00162-111		ACV00162-111	
ACV00162-112		ACV00162-112	
ACV00162-113		ACV00162-113	
ACV00162-114		ACV00162-114	
ACV00162-115		ACV00162-115	
ACV00162-116		ACV00162-116	
ACV00162-117		ACV00162-117	
ACV00162-118		ACV00162-118	
ACV00162-119		ACV00162-119	
ACV00162-120		ACV00162-120	
ACV00162-121		ACV00162-121	
ACV00162-122		ACV00162-122	
ACV00162-123		ACV00162-123	
ACV00162-124		ACV00162-124	
ACV00162-125		ACV00162-125	
ACV00162-126		ACV00162-126	
ACV00162-127		ACV00162-127	
ACV00162-128		ACV00162-128	
ACV00162-129		ACV00162-129	
ACV00162-130		ACV00162-130	
ACV00162-131		ACV00162-131	
ACV00162-132		ACV00162-132	
ACV00162-133		ACV00162-133	
ACV00162-134		ACV00162-134	
ACV00162-135		ACV00162-135	
ACV00162-136		ACV00162-136	
ACV00162-137		ACV00162-137	
ACV00162-138		ACV00162-138	
ACV00162-139		ACV00162-139	
ACV00162-140		ACV00162-140	
ACV00162-141		ACV00162-141	
ACV00162-142		ACV00162-142	
ACV00162-143		ACV00162-143	
ACV00162-144		ACV00162-144	
ACV00162-145		ACV	

1. BEND RADIO 0.13 INCH MAX WHERE NOT NOTED.
2. ANSI Y14.5M-1982, MIL-A-2550 AND MIL-A 70788 APPLY.
3. MATERIAL: SHEET, SAE OR ANSI 1005-1010 STEEL, CARBON, COLD ROLL OR HOT ROLL.
PER ASTM A568, (ASTM A368 OR A569).



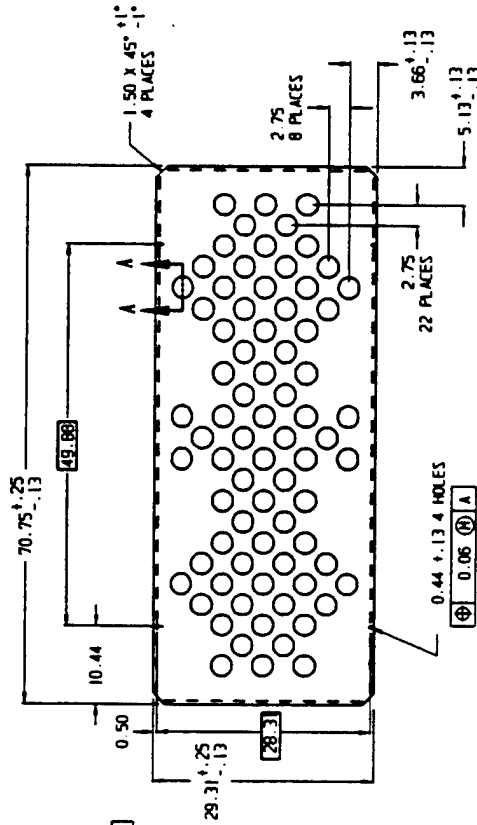
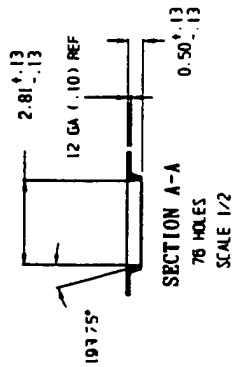
PART NO ACV00163

[illegible]

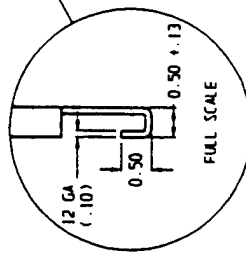
DISTRIBUTION STATEMENT A.
APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

NOTES:

1. BEND RADIUS 0.13 INCH MAX WHERE NOT NOTED.
2. ANST Y14-SH-1002, MIL-A-2550 AND MIL-P-70708 APPLY.
3. MATERIAL: SHEET, SAE OR ANST 1005-1010 STEEL, CARBON, COLD ROLL OR HOT ROLL, PER ASTM A568, (ASTM A306 OR A569).



SOME HIDDEN LINES OMITTED FOR CLARITY



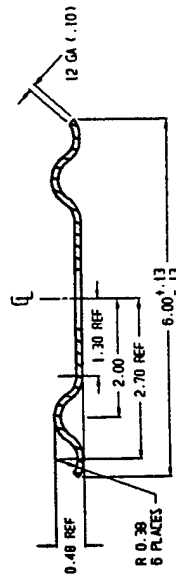
PART NO ACV00166

DISTRIBUTION STATEMENT A:
APPROVED FOR PUBLIC RELEASE:
DISTRIBUTION IS UNLIMITED.

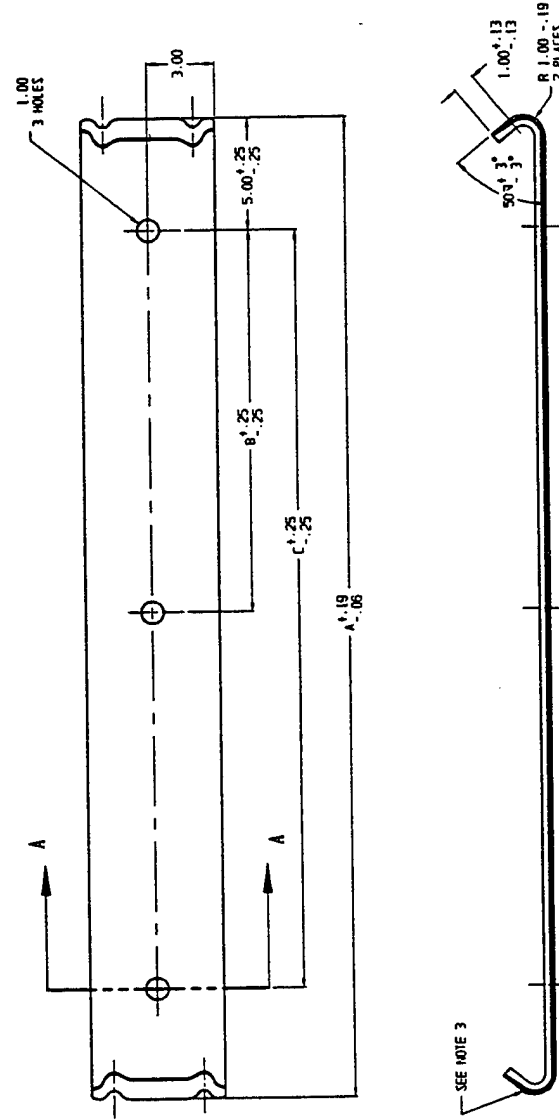
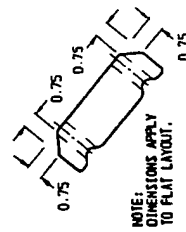
DESIGN ACTIVITY		DATE: 94-03-25	
BLK	SYS	DESIGNER	CHKD BY
JS	JAC	T. J. MICHELS	
DESIGNED BY		CHECKED BY	
V. F. ERNST		WILLIAM F. ERNST	
PART NO		ACV00166	
SHEET NO		SHEET OF	
SHEET NO		SHEET OF	

- NOTES:
 1. ANSI Y14.2M-1982, MIL-A-2500 AND MIL-P-70786 APPLY.
 2. MATERIAL: SHEET, SAE OR AISI 1005-1010 STEEL, CARBON, COLD ROLL OR HOT ROLL, PER ASTM A568 (ASTM A568 OR A569).
 3. DISTORTION IN THE BEND IS PERMISSIBLE.

NOTE:
 DIMENSIONS APPLY FROM
 CENTERLINE OF HOLE.



SECTION A-A
 SCALE 1/1



SEE NOTE 3

HIDDEN LINES OMITTED FOR CLARITY

DIMENSION			
PART NO	A	B	C
ACV00168-1	70.75	30.38	60.75
ACV00168-2	78.50	34.25	68.50

DISTRIBUTION STATEMENT A:
 APPROVED FOR PUBLIC RELEASE;
 DISTRIBUTION IS UNLIMITED.

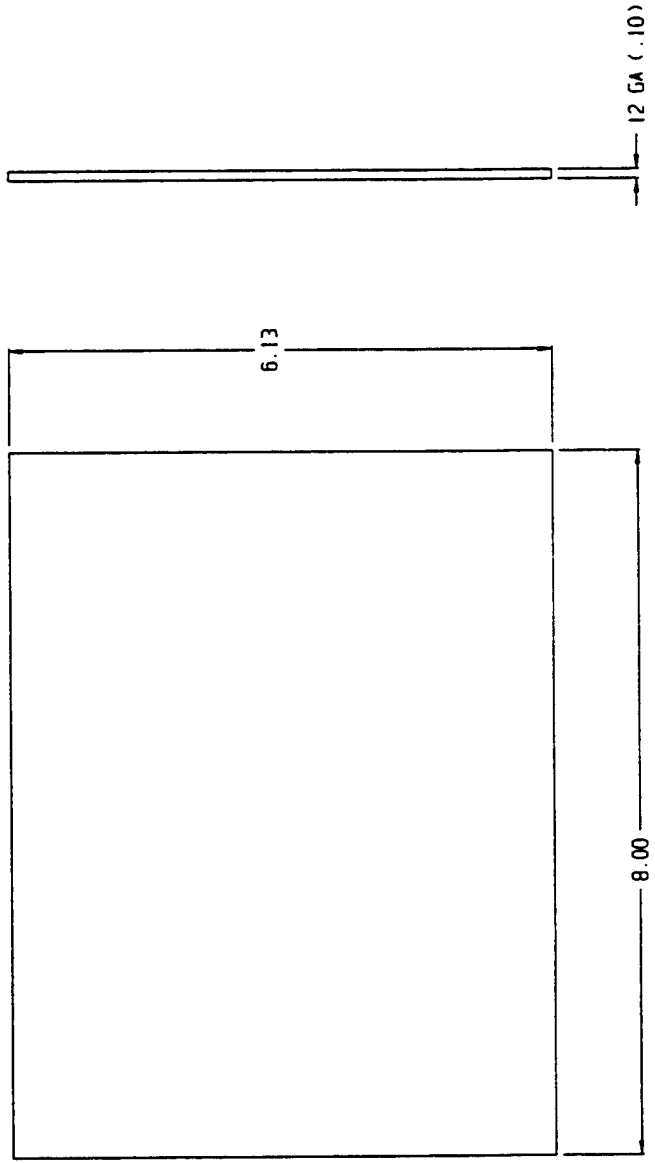
REV	DESCRIPTION	DATE	APPROVED
1	PRODUCT BASELINE	94-03-25	SCHULTZ
2	PER HMR2001	94-03-25	
3	FOR HST 3003	95-06-22	
4		96-04-11	

PART NO ACV00168

DESIGN ACTIVITY		U.S. NAVY	
DESIGNER: B.K. SXS SCHULTZ		APPROVED: WILLIAM F. ERNST	
CHECKER: J.S. J.F. I. J. NICHOLS		DATE: 94-03-25	
DRAWN: M.F. ERNST		SCALE: 3/8	
PART NO: ACV00168		UNIT: IN	
MATERIAL: SK10-PALLET SHEET METAL		SHEET NO: 168	
APPROVED: WILLIAM F. ERNST		DATE: 94-03-25	
APPLICATION: ACV00168		SHEET NO: 168	

NOTES:

1. ANSI Y14.5M-1982, MIL-A-2550 AND MIL-P-70786 APPLY.
2. MATERIAL: SHEET, SAE OR ANSI 1005-1010 STEEL, CARBON, COLD ROLL OR HOT ROLL, PER ASTM A568, (ASTM A366 OR A569).



PART NO ACV00307

DISTRIBUTION STATEMENT A.

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

LTR		REVISION		DATE	APPROVED
-	PRODUCT BASELINE	ERR @#00000	YY-MM-DD	YY-MM-DD	

DATE		DESIGN ACTIVITY		U.S. ARMY INDUSTRIAL OPERATIONS COMMAND DEFENSE MANUFACTURING CENTER SAYANA, ILLINOIS 61074-9639	
96-06-05	BJK TJM MICHELS				
UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES. BREAK SHARP CORNERS AND EDGES. FRACTIONS ON DECIMALS					
NEXT ASSY USED ON					
ACV00165 2.75 HYDRA					
ALV00164 ROCKET					
APPLICATION					
POST SUPPORT PLATE					
SIZE	CAGE CODE				
C	28620	ACV00307			
SCALE	1/1	UNIT	WT	SHEET 1 OF 1	

1. DETAIL REQUIREMENTS FOR SURFACE PREPARATION (CLEANING AND PRETREATMENT) TO BARE METAL PRIOR TO PRIMING AND PAINTING.

- 1.1 ALL SURFACES SHALL BE THOROUGHLY CLEANED SUCH THAT THE BARE METAL SURFACES ARE FREE FROM OIL, GREASE, DIRT, SCALE, RUST, FOREIGN MATTER AND LOOSE WELD SPATTER. THE CLEANING METHOD SHALL BE IN ACCORDANCE WITH ANY METHOD IN TABLE IV OF MIL-STD-171, FOR STEEL SUBSTRATES THE PRETREATMENT TO USE IS ZINC PHOSPHATE, FINISH NO. 5.1.1, IRON PHOSPHATE, FINISH NO. 5.1.2 OR WASH PRIMER, FINISH NO. 5.2.
- 1.2 IMMEDIATELY AFTER CLEANING, ANY SOLVENTS OR MOISTURE SHALL BE COMPLETELY REMOVED. THESE CLEAN DRY SURFACES SHALL THEN HAVE A PRETREATMENT APPLIED IN ACCORDANCE WITH MIL-STD-171, FOR STEEL SUBSTRATES THE PRETREATMENT TO USE IS ZINC PHOSPHATE, FINISH NO. 5.1.1, IRON PHOSPHATE, FINISH NO. 5.1.2 OR WASH PRIMER, FINISH NO. 5.2.
- 1.3 IMMEDIATELY PRIOR TO PRIMING, ALL SURFACES WHICH HAVE BEEN CLEANED AND PRETREATED IN ACCORDANCE WITH PARAGRAPH 1.1 AND 1.2 SHALL BE CHECKED FOR THOROUGH CLEANNESS. ANY ACCUMULATION OF OIL, GREASE, DIRT, RESIDUES FROM THE CLEANING PROCESS OR ANY FOREIGN MATERIAL SHALL BE COMPLETELY REMOVED. THE USE OF SOLVENTS MEETING THE REQUIREMENTS OF TABLE IV, FINISH NO. 4.3 OF MIL-STD-171 IS ACCEPTABLE. THE COMPLETE DRYING OF ANY SOLVENTS OR MOISTURE IS ESSENTIAL.

2. DETAIL REQUIREMENTS FOR APPLICATION OF ANTI-CORROSIVE PRIMER PAINT.

- 2.1 PRIMER SHALL BE APPLIED ON ALL SURFACES IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS AND PARAGRAPHS 5.2.1 AND 5.2.2 OF MIL-STD-171 (EXCEPT THAT WHEN ACCELERATED DRYING IS EMPLOYED, OVEN TEMPERATURE IS NOT TO EXCEED 200 DEGREES F). MIL-P-53022 OR MIL-P-53030 MAY BE USED ON EITHER FERROUS OR NON-FERROUS MATERIALS.
- 2.2 ONE COAT OF PRIMER SHALL BE APPLIED AS PROMPTLY AS POSSIBLE AFTER THE SURFACES HAVE BEEN PREPARED AND CLEANED BY THE AFOREMENTIONED PROCEDURES. THE PRIMER SHALL BE DRY TO THE TOUCH IN ACCORDANCE WITH MIL-C-53072. ALL EPOXY PRIMERS SHALL BE PROPERLY DRIED BEFORE TOPCOATING, PRIMER DRY FILM THICKNESS SHALL BE APPLIED TO ATTAIN THE 336 HOUR SALT SPRAY REQUIREMENT. RECOMMENDED THICKNESS RANGE IS .0010 TO .0035 INCHES (.0254 TO .0889 MM).

3. DETAIL REQUIREMENTS FOR APPLICATION OF POLYURETHANE TOPCOAT PAINT.

- 3.1 TOPCOAT SHALL BE APPLIED ON EXTERIOR SURFACES ONLY IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS OR PARAGRAPHS 5.2.1 AND 5.2.2 OF MIL-STD-171, UNLESS OTHERWISE SPECIFIED. THE TOPCOAT COLOR SHALL BE GREEN NO. 383 IN ACCORDANCE WITH MIL-C-46168 OR MIL-C-53039.
- 3.2 TOPCOAT DRY FILM THICKNESS OF MIL-C-46168 AND MIL-C-53039 SHALL BE .0018 TO .0035 INCHES (.0457 TO .0889 MM) TOTAL APPLIED IN TWO COATS. THE SECOND COAT MAY BE APPLIED IN ACCORDANCE WITH MIL-C-53072 OR MANUFACTURERS' RECOMMENDATIONS.
- 3.3 ALL REWORK SHALL BE IN ACCORDANCE WITH PARAGRAPH 3.6.1 OF MIL-C-53072.
- 3.4 ALTERNATE COATINGS MAY BE USED IF APPROVED BY THE CONTRACTING OFFICER.

DISTRIBUTION STATEMENT A.

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

REVISION		
LTR	DESCRIPTION	DATE
A	CHANGE PAINT THICKNESS REQUIREMENTS	87-09-17
B	PRODUCT BASELINE ERR M8K9450 NOR M2T4200 92-07-20 (ECP M3T4030 93-11-02)	89-04-10
C	(ECP M4T3005 94-06-02)	94-11-02
D	NOR M5T8003 95-05-09	95-06-07
E	NOR M5T3003 95-06-22 (ECP M6R3004) 96-02-22	96-04-11

4. DETAIL REQUIREMENTS FOR APPLICATION TO PREVIOUSLY PAINTED SUBSTRATES.

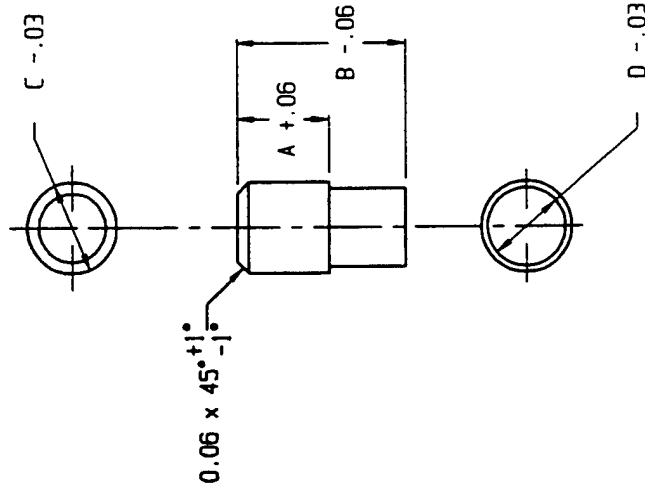
- 4.1 ALL PREVIOUSLY PAINTED SURFACES MUST BE CLEAN AND FREE FROM RUST. WHERE RUST EXISTS, MECHANICAL CLEANING IN ACCORDANCE WITH FINISH NO. 4.1.1 OF MIL-STD-171 (WIREBRUSH IS ACCEPTABLE) SHALL BE PERFORMED UNTIL BRIGHT METAL IS EXPOSED. ONE COAT OF POLYURETHANE PAINT PER MIL-C-46168 OR MIL-C-53039 CAN BE APPLIED DIRECTLY OVER EXISTING ENAMEL OR POLYURETHANE COATINGS WITHOUT ANY ADDITIONAL SURFACE PREPARATION EXCEPT CLEANING. IF THE SURFACE IS BROKEN DOWN TO THE SUBSTRATE, THAT AREA MUST BE CLEANED, PRETREATED, PRIMED AND TOPCOATED PER PARAGRAPH 1 THROUGH 3. THE POLYURETHANE COATING SHALL NOT HOWEVER, BE DIRECTLY APPLIED OVER LACQUER. THE LACQUER MUST BE REMOVED DOWN TO THE BARE METAL BEFORE POLYURETHANE COATING IS APPLIED PER PARAGRAPHS 1 THROUGH 3.
- 4.2 WHERE VENDOR PARTS ARE SUPPLIED TO THE PRIME ORIGINAL EQUIPMENT MANUFACTURER (OEM) ALREADY ENAMEL PAINTED, THE PRIME OEM WILL HAVE TO REPAINT PER PARAGRAPH 4.1 BY APPLYING DIRECTLY OVER THE EXISTING ENAMEL COATING. IF THE VENDOR PARTS ARRIVE JUST ENAMEL PRIMED (WHICH IS PREFERABLE), WITH SPECIFICATION PRIMERS SUCH AS TT-P-1757 OR TT-P-664, THEN THE POLYURETHANE PAINT PER PARAGRAPH 4.1 WILL BE APPLIED DIRECTLY OVER PRIMED SURFACES. IF THE ENAMELS ON THE VENDOR PARTS ARE OF A COMMERCIAL OR UNKNOWN TYPE THEY MUST BE TESTED BEFORE THE POLYURETHANE CAN BE APPLIED. THIS ENTAILS APPLYING POLYURETHANE PAINT TO A SMALL AREA OF THE PART AND OBSERVING FOR A PERIOD OF 15 MINUTES FOR ANY DEFECTS SUCH AS BLISTERING, DELAMINATION OR BLEEDING. IF NONE ARE OBSERVED, THE REMAINDER OF THE PARTS CAN BE PAINTED. IF THERE IS A DEFECT, THE PARTS MUST BE CLEANED, PRETREATED, PRIMED AND TOPCOATED AS PREVIOUSLY DESCRIBED FOR BARE SUBSTRATES IN PARAGRAPH 1 THROUGH 3.

5. TESTING.

- 5.1 PALLETTS AND/OR ADAPTERS FINISHED IN ACCORDANCE WITH PARAGRAPH 2.3, AND 4 AS APPLICABLE SHALL BE TESTED FOR PAINT ADHESION USING ACTUAL PRODUCTION ITEMS.
- 5.2 THE PRIMER AND TOPCOAT SHALL BE ADHESION TESTED IN ACCORDANCE WITH PARAGRAPH 4.2.7.2 OF TT-C-490.
- 5.3 THE PRIMER AND TOPCOAT SHALL BE TESTED IN PARAGRAPH 4.2.8 OF TT-C-490.
- 5.4 MIL-C-53072, PARAGRAPH 4.3.3.7 APPLIES.

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES. BREAK SHARP CORNERS AND EDGES.		DATE	DESIGN ACTIVITY
TOLERANCES ON FRACTIONS DECIMALS ANGLES		86-05-09	U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND DEFENSE MANUFACTURING CENTER AND SCHOOL SAVANNAH, ILLINOIS 61074-9839
MATERIAL		CHGDRN DH KO	CHGDRN DH KO
		SCALE-DWG	SCALE-DWG
		SUBMITTER	SUBMITTER
		W. F. ERNST	W. F. ERNST
		JOHN L. BYRD, JR.	JOHN L. BYRD, JR.
		U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND SAVANNAH, ILLINOIS 61074-9839	U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND SAVANNAH, ILLINOIS 61074-9839
NEXT ASSY		SIZE	SIZE
USED ON		CAGE CODE	CAGE CODE
APPLICATION		28020	28020
		SCALE	SCALE
		NONE	NONE
		UNIT	UNIT
		WT	WT
		AC200000423	AC200000423
		SHEET	SHEET
		1 OF 1	1 OF 1

- NOTES:
1. ANSI Y14.5M-82 APPLIES.
 2. MATERIAL: STEEL, 1018 OR 1020, PER ASTM A36.

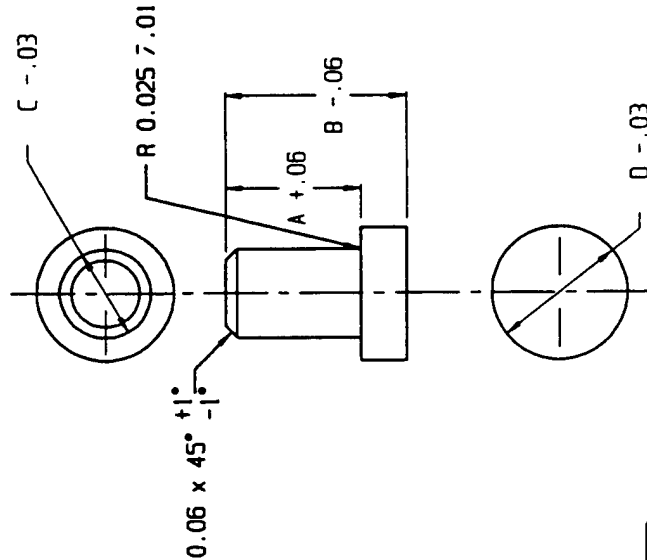


PART NO AC200000453-1
PART NO AC200000453-2
PART NO AC200000453-5

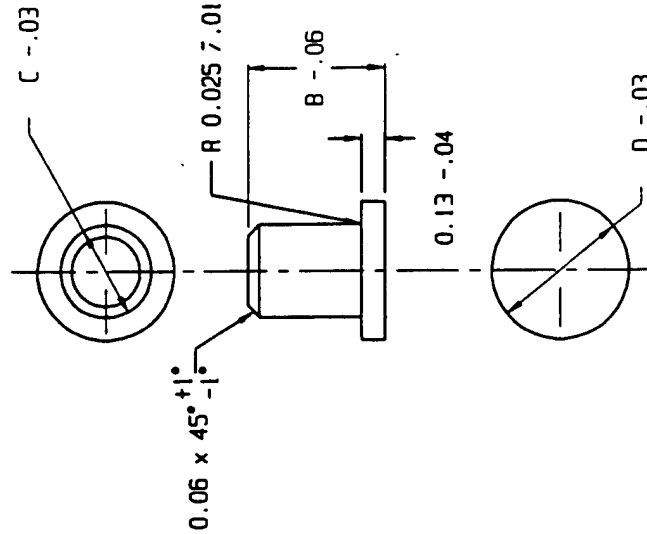
DIMENSION					
PART NO	A	B	C	D	
AC200000453-1	.63	1.00	.50	.43	
AC200000453-2	.50	.75	.31	.25	
AC200000453-3	.75	1.00	.50	.75	
AC200000453-4	N/A	.75	.31	.56	
AC200000453-5	.63	.69	.37	.31	

DISTRIBUTION STATEMENT A.

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.



PART NO AC200000453-3



PART NO AC200000453-4

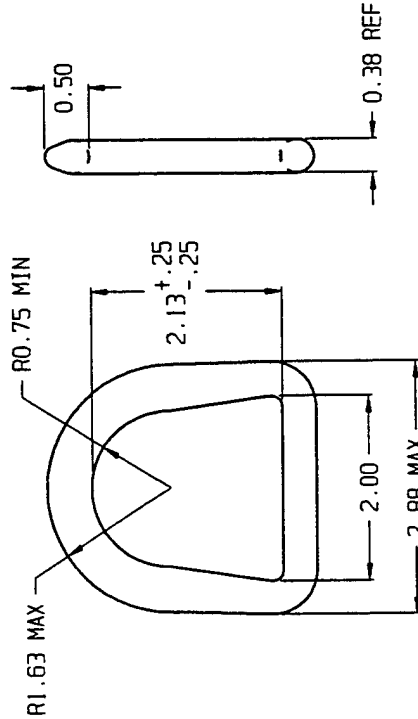
REVISION			DATE	APPROVED
LTR	DESCRIPTION			
-	PRODUCT BASELINE ERR M8K9450		89-04-10	TPT
A	NOR M9T3051	89-04-26	89-06-23	FRIED
B	ECP M9T3082-009	89-08-16	90-09-24	DREIER
C	ECP M0A2201-001	90-10-19	90-12-07	SCHULTZ
D	NOR M2T4200	92-07-20		
	(ECP M4T3005	94-06-02)	94-11-02	SCHULTZ
E	NOR M5T3003	95-06-22	96-04-11	

DESIGN ACTIVITY		U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND DEFENSE APPLICATION CENTER AND SCHOOL SAVANNAH, ILLINOIS 61074-9838	
DATE 87-06-05		DESIGNER DREIER	
BY JG	CHK MJJ	T.J. MICHELS	
WM JK		W. F. ERNST	
TITLE		LUG- ALIGNING METAL PALLET	
CAGE CODE		AC200000453	
SIZE		C 28620	
SCALE		2/1	
UNIT		WT	
SHEET		1 OF 1	

NOTES:

1. FRAME: 'D'-RING, 0.38 STOCK DIA, 4140 STEEL, 5,000# SAFE WORKING LOAD, ULTIMATE STRENGTH 13,000# OR GREATER.
2. PLATING: IMMERSION ZINC FLAKE/CHROMATE DISPERSION MIL-C-87115.
3. DIMENSIONS SHOWN ARE ENVELOPE DIMENSIONS NECESSARY FOR THE RING TO MATE WITH THE RING RETAINER AND TO PERFORM ITS INTENDED FUNCTION.
4. IDENTIFICATION OF THE SUGGESTED SOURCE(S) HEREON IS NOT TO BE CONSTRUED AS A GUARANTEE OF PRESENT OR CONTINUED AVAILABILITY AS A SOURCE OF SUPPLY FOR THE ITEM(S).

SUGGESTED SOURCES OF SUPPLY		
SUPPLIER DATA		
CAGE	PART NUMBER	NAME AND ADDRESS
16007	1070	U.S. FORGECAST CORP. P.O. BOX 387 FT. SMITH, AR 72902
6V480	204-115	HELGESEN INDUSTRIES, INC. 7261 HIGHWAY 60 WEST HARTFORD, WI 53027



SPECIFICATION CONTROL DRAWING

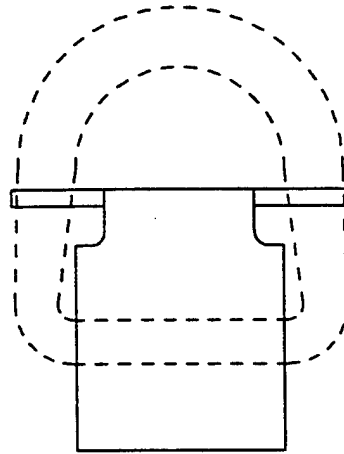
UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES. SHARP CORNERS AND EDGES.		DATE 89-03-10		DESIGN ACTIVITY U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND DEFENSE AMMUNITION CENTER AND SCHOOL SAVANNAH, ILLINOIS 61074-9839	
OPTION JG	DESIGN MJJ	PROJ NO DREIER			
REVISION WM JK	REVISION T. J. MICHELS	REVISION W. F. ERNST			
FRACTIONS DECIMALS 1/13			SUBMITTER U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL SAVANNAH, ILLINOIS 61074-9839		
MATERIAL			LIFTING RING		
NEXT ASSY			CAGE CODE 28620		
USED ON			SIZE C		
APPLICATION			SCALE 1/1		
			UNIT WT		
			SHEET 1 OF 1		

DISTRIBUTION STATEMENT A.

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

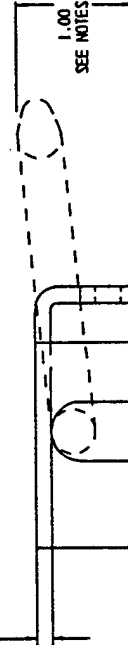
PART NUMBER	A	B	C	D	E	F	G	H
AC200000806	1.75	2.86	.34	.70	1.46	.80	.86	.46
AC200000806-2	1.78	2.73 7.02	.36 7.02	.61	1.51	.73	.87 7.03	NA

REV	DESCRIPTION	DATE	APPROVED
-	PRODUCT BASELINE	89-06-23	FRIGNO
A	(ECP H81303)	92-07-20	
	(NOR H274200)	94-06-02	
C	(ECP H813003)	95-06-22	
	(ECP H813008)	96-03-18	



.14 7.01
APPLIES TO
PART-2 ONLY

1.00 - .19
SEE NOTES 5 AND 6



DISTRIBUTION STATEMENT A:
APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

DESIGN ACTIVITY		DESIGN ACTIVITY	
DATE	89-03-13	DATE	89-03-13
BY	H.J. DIEER	BY	H.J. DIEER
FOR	T.J. MICHELS	FOR	T.J. MICHELS
APPROVED	V. F. ERNST	APPROVED	V. F. ERNST
LIFTING RING RETAINER		LIFTING RING RETAINER	
PART CODE		PART CODE	
20820		20820	
SCALE 2:1		SCALE 2:1	
SHEET 2 OF 2		SHEET 2 OF 2	